# PATTERNS AND DETERMINANTS OF HEALTH CARE UTILIZATION: AN ASSESSMENT OF HIGH DENSITY URBAN AREAS IN HARARE, ZIMBABWE

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## ABSTRACT

Zimbabwe has been well known, since independence in 1980, to have one of the best health care systems in Sub-Saharan Africa regardless of a low economic growth pattern. The gains in health status that have been reaped in the 1980s and early 1990s have now been reversed due to the combination of the effects of structural adjustment policies, intermittent drought, a decline in the quality of health care services and severe economic decline. The current economic environment places pressure on households, especially the poorest, to meet the rising costs of individual medical care. The study focused on the evaluation of the patterns and determinants of health care utilization, which can aid in understanding the responsiveness of individuals to the current health care system in light of the economic climate. A detailed assessment of health seeking behaviour and health care utilization was performed using a cross-sectional household community survey comprising of 527 households (2302 individuals) that were randomly selected in three high density suburbs in Harare, Zimbabwe. Information pertaining to demographics, socio-economic status, and health status in addition to the experiences in the use of health care services or health care providers was collected using a questionnaire.

A tenth (10.77%) of the sampled population reported suffering from a health problem or illness in the 4 weeks preceding the interviews. The majority of individuals either sought care at a public facility (44.13%) or did not seek care at all (31.98%). Health problems or illnesses ranged from fever to chronic illnesses. The majority of those suffering from fever/minor illnesses, diarrhoea, dental care needs, and mental illness did not seek care at all. The majority of those suffering from malaria, TB, pneumonia, body injury, antenatal care needs and other illnesses (e.g. STDs, epilepsy) sought care at a public facility.

A binary choice model (logit) was used to analyse the factors that influence the use and non-use of health care services and a multinomial regression model (logit) was used to analyse the determinants of use of the various health care providers. The results revealed that the use of health care services was influenced by gender, household size and illness severity. The results indicated that females, large sized households and those with severe illnesses were more likely to seek care rather than not seek care. The key determinants of use of private care were gender of the household head and employment status. Individuals

from female headed households were more likely to seek private care. Furthermore, those with informally employed or unemployed household heads were more likely to use private facilities than those who were formally employed. The key determinant of use of other care (i.e. pharmacy) was illness severity; with individuals suffering from severe illnesses more likely to seek care at a pharmacy. Finally, the key determinants for not seeking care were gender, household size and illness severity. Males, small sized households and those with minor illnesses were more likely not to seek care rather than seek public care. Interestingly the variables age, marital status of household head, education level of household head, socioeconomic status and religion were not found to statistically contribute to the use of health care services/ providers.

Qualitative analysis revealed that the majority of individuals felt that the quality of current health services is poorer than it was before the economic crisis ensued in 2002. The crisis has had a marked effect on reported health care utilization as revealed by a sharp decline (30%) in the use of public care and a comparable rise in the proportion of individuals who did not seek care in moving from the year 2002 to 2008. Furthermore, the study revealed that the majority of respondents would prefer to seek care either at a public or private health care facility in the event that they fall ill. Overall the two most important points from the respondents' view in the choice of care were affordability and quality of service offered.

The study results revealed that the economic crisis has a considerable negative effect on the current health service delivery system and several key concerns were raised. These included the general high cost of health care goods and services, the lack of availability of drugs and medical personnel, and an unhealthier environment brought about by the lack of adequate management of garbage and sewage disposal. At the individual level, equity in the use and access to health care services is important. Financial barriers that limit the use of health services need to be addressed. At the macro-level, there needs to be an increase in the availability of global public goods, such as foreign aid, in order to deal with shortages of drugs and basic equipment in health care facilities. Furthermore, government needs to come up with pragmatic ways to deal with employment, wages and cash shortages, in light of the hyperinflationary environment.

**Keywords:** Health care, Utilization, Health seeking behaviour, Zimbabwe

## DEDICATION

I would like to dedicate this thesis to my family, who have always encouraged me to work hard and enjoy whatever I do. My parents – mom and dad, you have provided me with so much and you have always encouraged me to think critically, I am truly grateful for that. My older brother, Craig, you have constantly motivated me to make myself a better person and push beyond any boundaries; you always say "nothing is worth it without sacrifice". My uncle, Mr. T Mafuse, you have encouraged me to look deeper when analyzing issues and to be more outspoken. This is to everyone in my family, thank you so much always for your love and support. Love you all so much!

*"I believe in Zimbabwe and I believe we have to get it right. If we all leave, it won't solve the problem" – Dr Gwatidzo (President of Zimbabwe Association of Doctors for Human Rights)*

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## LIST OF ACRONYMS

| | |
|---|---|
| **AIDS** | **Acquired Immuno-Deficiency Syndrome** |
| **CIA** | **Central Intelligence Agency** |
| **CSO** | **Central Statistics Office** |
| **CWGH** | **Community Working Group on Health** |
| **ESAP** | **Economic Structural Adjustment Programme** |
| **FAO** | **Food and Agriculture Organization** |
| **GDP** | **Gross Domestic Product** |
| **GNI** | **Gross National Income** |
| **HBM** | **Health Belief Model** |
| **HIV** | **Human Immunodeficiency Virus** |
| **IIA** | **Independence of Irrelevant Alternatives** |
| **ILO** | **International Labour Organization** |
| **IMF** | **International Monetary Fund** |
| **IMR** | **Infant Mortality Rate** |
| **LE** | **Life Expectancy** |
| **MoHCW** | **Ministry of Health and Child Welfare** |
| **NAMAS** | **National Association of Medical Aid Societies** |
| **NGO** | **Non Governmental Organization** |
| **NHA** | **National Health Accounts** |
| **PAHO** | **Pan American Health Organization** |
| **PASS** | **Poverty Assessment Study Survey** |
| **PHC** | **Primary Health Care** |
| **PPP** | **Purchasing Power Parity** |
| **SAP** | **Structural Adjustment Programme** |
| **TB** | **Tuberculosis** |
| **U5MR** | **Under 5 Mortality Rate** |

| | |
|---|---|
| **UK** | **United Kingdom** |
| **UN** | **United Nations** |
| **US** | **United States** |
| **USAID** | **United States Agency for International Development** |
| **WHO** | **World Health Organization** |
| **ZDHS** | **Zimbabwe Demographic Health Survey** |
| **ZINATHA** | **Zimbabwe National Traditional Healers Association** |
| **ZW** | **Zimbabwean** |

## GLOSSARY OF TERMS

**Binary Choice Regression Model** – model in which the **dependant variable** is binary in nature, i.e. takes on values of either one or zero, denoting the presence or absence of an observation respectively. Binary choice models include the logit, probit and the linear probability models. In this study the logit model was used.

**Cross-sectional study** – a study performed at one point in time and without the use of a control group.

**Demand** – is an expression of need, therefore it focuses on consumer preferences and the expression of felt need. Some empirical studies reviewed in this paper have used demand interchangeably with utilization when focusing on health care services.

**Dependent Variable** – is also known as the explanatory variable, typically, x.

**Dummy Variable** – is another label for a binary variable that can take on values of either one or zero, denoting the presence or absence of a characteristic respectively.

**Global Public Good** – a **public good** that is undersupplied by local governments and is considered 'global' because its benefits accrue beyond national borders (Labonte, 2004)

**Hausman Specification Test** – a specification test for a multinomial logit model, used to test for the Independence of Irrelevant Alternatives (IIA) property. The test is based on eliminating one or more alternatives from the choice set (Hausman & McFadden, 1984)

**Health Care Utilization** – is defined by Menec et al. (2002) as a measure of a population's use of health care services that are available to them. It is also defined as "a result of multiple factors that influence the biological need for health interventions, access, demand and actual service usage" (PAHO, 1999). In this study, health care utilization is defined as a visit to a health care provider or facility by an individual in the event of an illness.

**Health Seeking Behaviour** - the decision making process involved from the perceptions/ awareness of an illness to the actions employed when attempting to find care. A visit to a health facility is assumed to be an outcome of a patients' decision making process (Mwabu, 1986).

**Heteroscedastic** – this is when the variance of the error term is not constant across a set of observations.

**Household Head** – is an adult male or female who generally provides most of the income and is responsible for the other members and the organization of a household.

**Household Survey** – is a survey that collects information about a study population. In this study a household survey was used to ascertain information regarding health seeking behaviour, health care utilization and its correlates.

**Independence of Irrelevant Alternatives (IIA) Property** – this implies that the ratio of probabilities of choosing any two alternatives is independent of the availability of any other alternative in the choice set (Hausman & McFadden, 1984). The IIA property can be tested using the **Hausman specification test** to check whether there is a significant difference in the estimated coefficients when one of the types of care is dropped.

**Independent Variable** – is known as the outcome variable, typically, y.

**Key Informant** – is an individual within a household who is responsible for responding for other household members. In this study, the **household head** was considered to be the key informant, but if they were not available, a household member above the age of 18 years, was eligible to be the key informant.

**Maximum Likelihood Estimation** – this is a method of estimation that specifies the joint probability of the observed set of data and finds the parameter values that maximize it (Jones, 2006). It is used for the estimation of many models including the logit model.

**Merit Good** - a good that society thinks everyone should have regardless of whether the individual wants it or not.

**Multinomial Logit Regression Model** – model in which applies to discrete **dependant variables** that have more than two categorical responses and these categories are nominal (i.e. unordered).

**Other Care** - in this study other forms of care are considered to be mission hospitals or clinics, pharmacies, traditional healers, faith healers or using self-care.

**Principal Components Analysis (PCA)** - is a multivariate statistical technique used to reduce a large number of independent variables into a smaller set of variables that represents the same information from the original set of variables (Dunteman, 1989, p7; Vyas & Kumaranayake, 2006). In essence, PCA aims to explain the total variance in the original set of variables included in the analysis (Okorafor, 2008).

**Pilot Study** – a mini study undertaken before the main study which allows testing of the research instrument (questionnaire) and research logistics. Data from the pilot study is

excluded in the main study, but aids in rectifying any errors and highlighting potential research practical issues.

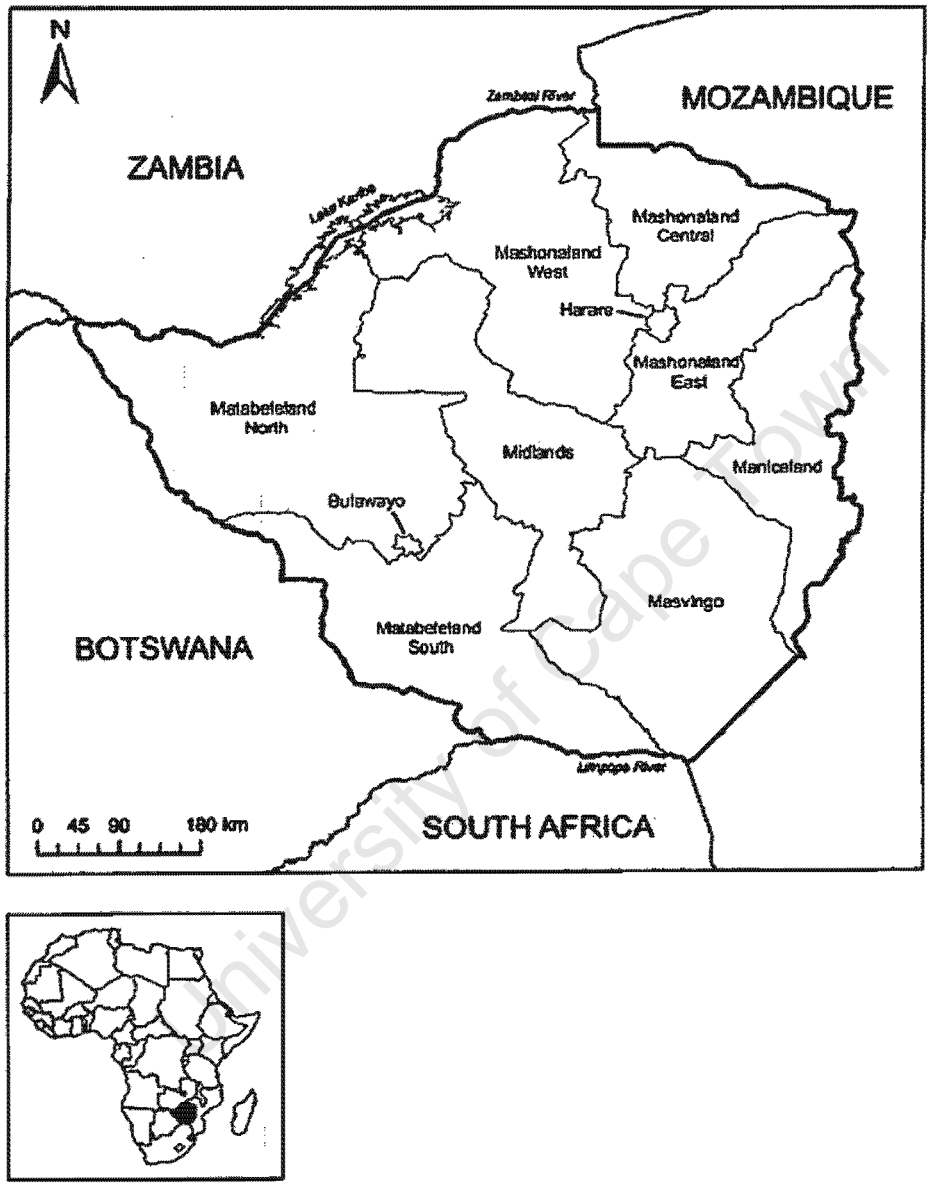
**Private Care** – in this study, private care considered to be care rendered at private clinics, private hospitals or by a private health care provider.

**Public Care -** in this study, public care considered to be care rendered at public clinics or public hospitals.

**Public good** – a service or amenity that is undersupplied by the market and therefore requires public financing or provision (Labonte, 2004)

**Recall Period** – is the time frame a respondent has to remember a past event. In this study a recall period of 4 weeks was used to ascertain illness.

## MAP OF ZIMBABWE






Source: CSO (2007b)

# CHAPTER ONE: INTRODUCTION

## 1.1 Study Background

Improving and maintaining the health of a population is an important objective of any health system. Health is both an important development goal and a means to development (Labonte, 2004). One of the key social determinants of health is health care (Braveman, 2003). In order to improve the health status of individuals and the population as a whole, an assessment of health care service delivery is essential. Numerous challenges exist in health care systems such as inequities in health care service delivery, and these need to be confronted. The notion of social protection, which lies in the realm of equity, is therefore of utmost importance. Equity in this regard therefore encompasses identifying and overcoming obstacles that keep disadvantaged groups in society from receiving the complete benefits from health care interventions (Braveman & Gruskin, 2003b). Consequently, this study explores the use of health care services and its determinants in Zimbabwe at a time where the country is facing a severe economic crisis. There is no evidence on the use of health care services in Zimbabwe amidst the economic crisis, and this study intends to fill this gap. Furthermore, understanding the main determinants of health care use can be vital in health sector reform. In order to create a health system that is responsive to the needs of the population, the evaluation of the use of health care services becomes crucial. A detailed assessment of health seeking behaviour and the use of health care services was performed.



## 1.2 Country Background

Zimbabwe is a country located in the Southern region of Africa, with a population of approximately 13.1 million (World Bank, 2007). The country has two major cities, Bulawayo and Harare, which have provincial status, with Harare being the capital city. In 2005, it was estimated that 36% of the population resided in an urban setting (WHO, 2006a). In 2007, the GDP of Zimbabwe was recorded as US$6.186 billion and the GNI per capita as US$500 in Purchasing Power Parity (PPP) (CIA World Factbook, 2008). Zimbabwe, formerly known as Rhodesia, gained independence from the UK in 1980 through the facilitation of sanctions by the UN and a guerrilla uprising, which led to free elections in 1979 (CIA World Factbook, 2008).

### 1.2.1 Zimbabwe: 1980-1990

Zimbabwe has been well known, since independence, to have one of the best health care systems in Sub-Saharan Africa regardless of a low economic growth pattern, although there have been significant changes since. In the 1980s there was a strong commitment to health policy development and implementation. This was shown by the consideration of equity in distribution in health care and the facilitation of organizational arrangements through the redistribution of resources – both human and financial (Dugbatey, 1999). The government adopted a Primary Health Care approach that focused on preventive care, family planning and child health. There was also strong support for health promotion and education, in conjunction with the use of social policies such as improvement of basic water and sanitation services. The high investment in education has resulted in Zimbabwe having a high literacy rate of 90.1%, which is substantially higher than the WHO African region value of 60.1% (WHO, 2006a). The recognized relationship between social policy and health status has enabled impressive achievements in national health indicator statistics in Zimbabwe. The key outcome measures of national health status are infant mortality rates (IMR), under 5 mortality rates (U5MR) and life expectancy at birth. These are indicators of overall health development (Dugbatey, 1999). From 1980 to 1988, IMR decreased from 90 per thousand to 53 per thousand (World Bank, 1999), U5MR dropped from 108 per thousand to 80 per thousand (WHO, 2006a) and life expectancy increased from 56 to 64 years (Juhasz, 2004), within the same time period. The health care system received immense support from the government, WHO and donor agencies. These gains in health status have since been declining due to the effects of structural adjustment policies, HIV/AIDS and economic decline as shall be detailed.



### 1.2.2 Structural Adjustment Policy

In the 1980s, a global economic crisis was sparked-off due to a rapid increase in interest rates, deteriorating prices for exports from Africa, trade agreements in industrialised countries, drought, poor leadership in Africa and the sudden increase in HIV/AIDS cases (Logie & Woodroffe, 1993). The global economic crisis prompted, the imposition of structural adjustment policies (SAPs) by the International Monetary Fund and the World Bank in many African countries, including Zimbabwe in 1991. Termed the economic structural adjustment policy (ESAP), it was aimed at removing distortions in the market, thus allowing the restoration of economic growth. Activities such as trade liberalisation, currency devaluation, removal of government subsidies and price controls, 'cost

recovery' in health and privatisation and increased interest rates were central to ESAP (Logie & Woodroffe, 1993). Currency devaluation accelerated the transition of Zimbabwe from a middle income to a low income country (Chattopadyay, 2000).

ESAP had serious economic and health implications within a few years of implementation. For example, there was an introduction of a user fees system, which posed as a barrier at the point of use for those most in need of health care services, especially the growing urban poor (World Bank, 1999). Furthermore, after the implementation of ESAP, there was a decline of 20% in government health expenditure (Logie & Woodroffe, 1993) which resulted in a decline in the quality of health services (Juhasz, 2004). The overall reduction in real expenditure by the government indicated that there were systemic and increasing shortfalls in social infrastructure investment (Saunders, 1996). Despite this, the government attempted to protect expenditure in the education and health sectors, but this only resulted in large budget deficits thereby contributing to inflation and increased interest payments (World Bank, 1999).

At the same point in time, there were rapid price increases for basic commodities and social services as well as a sharp drop in formal employment especially in the public sector due to erosion of real wages and low morale, thereby leaving vulnerable groups worse-off than before the adjustment (World Bank, 1999). Donor funding also started to be withdrawn in the 1990s by foreign agencies and donors so as to put pressure on the government to comply with the conditions of ESAP (Saunders, 1996). This was detrimental to the health care infrastructure as there had been reliance on donor agencies.

The IMF intended economic gains to Zimbabwe were little, instead, economic growth slowed down and became more erratic in the mid 1990s (Saunders, 1996). An IMF sponsored study conducted in Zimbabwe a few years after the implementation of ESAP revealed that the social consequences had been underestimated. This was due to poor program design including key issues such as being 'deemed overly ambitious and lacking concern for social consequences' (Juhasz, 2004).

Coinciding with the implementation of ESAP were intermittent droughts in the early 1990s, which caused Zimbabwe to have low production of maize, a staple food, thus

prompting the need for food aid from the US and the UN (PASS, 2003). Throughout the implementation of ESAP and towards the late 1990s, the country has been faced with mounting debt; both internally and externally at high interest rates. Domestic debt has been exacerbated by a culture of political patronage shown by performing unbudgeted programs such as the payout of war veterans, in 1997 (World Bank, 1999). Over the period of 1993 to 1997, the central government revenue has also declined by over 27%, due to shrinkage in tax base, exacerbated by the growth of a large informal sector (Chattopadyay, 2000).

### 1.2.3 Land Reform

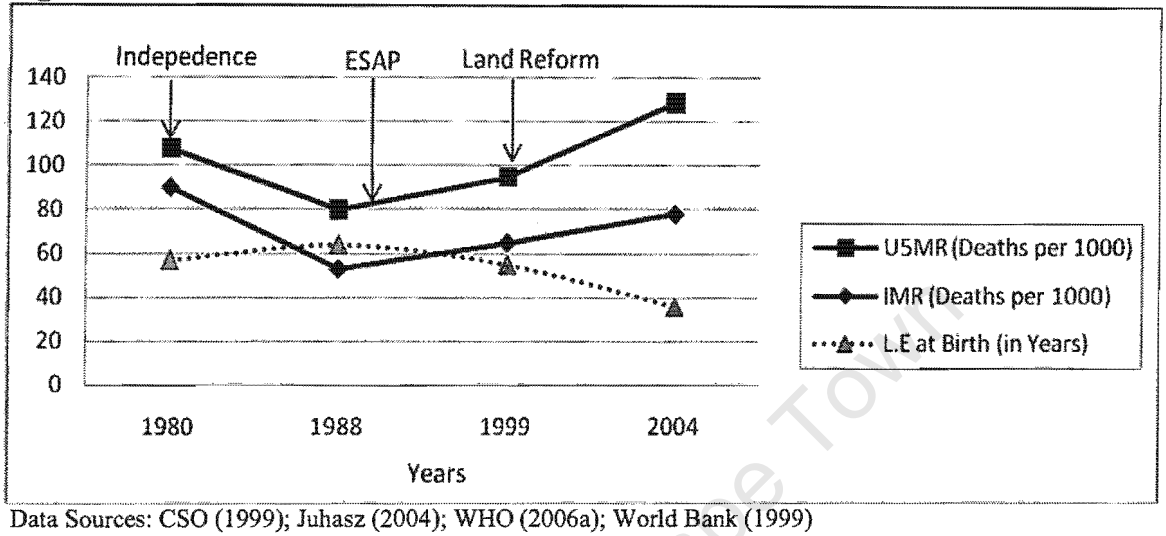
In the period of December 1999-2002, the government facilitated the land reform project, whereby there was seizure of white owned farms. The notion behind it was to provide black Zimbabweans with land that had been expropriated from them and their fore-fathers during the colonial era (Pazvakavambwa, 2007). Orderly land distribution was supposed to take place as preliminary notice was provided to white farmers of when to hand the land over to the government. But due to mounting pressure on the government from war veterans and land acquisition protestants together with rising reluctance by white farmers to comply, the process became violent resulting in land invasions (Pazvakavambwa, 2007). The seizure of land, including white owned commercial farms, caused the departure of thousands of white farmers. This has resulted in an overall decline of the agricultural industry and this had a negative effect on the economy. The Zimbabwean economy is diversified but biased toward agriculture and mining, which are by far the country's major foreign-currency earning sectors (CSO, 2007a). A report in 2001 indicated that the agricultural sector was responsible for the income and employment of 65.5% of the population (FAO Rome, 2001). The commercial farming sector was also a provider of hundreds of thousands of jobs; hence there were a lot of retrenchment and job losses after the land reform project.

### 1.2.4 Health Indicators

The gains in health status in Zimbabwe that had been reaped in the 1980s and early 1990s have now been reversed due to the combination of the effects of ESAP, intermittent drought, a decline in quality of health care services and severe economic decline. The IMR has since increased from 53 per thousand in 1988 to 78 per thousand in 2004,

U5MR has sharply increased from 80 in 1990 to 129 in 2005 and life expectancy has declined from 64 in 1988 to 37 for males and 34 for females in 2004 (WHO, 2006a) (see Figure 1.1).

**Figure 1.1** Trends in Health Indicators from 1980-2004




Data Sources: CSO (1999); Juhasz (2004); WHO (2006a); World Bank (1999)

There has been a significant increase in IMR and U5MR since the implementation of ESAP, whilst life expectancy has dropped by almost 50% since 1988. HIV/AIDS has contributed to the decline in life expectancy. No country in Africa could have predicted the disastrous effects of HIV/AIDS, which has resulted in an increase in demand for health care in Zimbabwe, further straining the health care system. Zimbabwe has experienced very high prevalence rates of 24.6% in 2003, but this figure has since declined to 20.1% in 2005 (WHO, 2006a).

As previously mentioned, intermittent droughts have lowered production in agriculture and there has also been an increase in the cost of food, resulting in a rise in malnutrition. In 1997, it was reported that 39% of the population was undernourished (FAO Rome, 2001) and malnutrition in children increased from 8.5% in 1997 (NHP, 1997) to 23% in 2006 (CSO, 2007). Undernourishment and malnutrition have a direct effect on health status. Poverty in urban areas has also risen by 66% between 1995 and 2003, with a further 66% of the urban population deemed to be food insecure (WHO, 2005). In 2004, estimates showed that 68% of the population were living below the poverty datum line (CIA World Factbook, 2008).

### 1.2.5 Zimbabwe: Current Economic and Social Situation

Since the retrenchment of many workers during ESAP, land reform and the progression of poor macro-economic conditions, unemployment has been on the rise. Unemployment has also been exacerbated by the government's substantial budgetary deficit, as a proportion of GDP, which has quadrupled in value in 2007 to the figure of 43% of GDP (IMARA, 2007) from 10% of GDP in the early 1980s (World Bank, 1999). Failure to reduce budget deficit results in limited job creation and economic stagnation (World Bank, 1999). This is evident as there has been increase in unemployment, in the formal sector, from a figure of 60% in 2003 (PASS, 2003) to 80% in 2005 (CIA World Factbook, 2008; WHO, 2005).

In 2005, there was an extensive project promoted by the government to embark on destroying illegal housing structures and informal businesses, which has left close to a million people vulnerable resulting in the disruption of access to and quality of basic social and health care services (WHO, 2005). In August 2006, the Zimbabwean people were forced to adopt a new bearer cheque system[1], which had three zeroes less than the old currency. This was implemented within three weeks and it prompted the first quadruple digit inflation rate of 1,200% in Zimbabwe (IMARA, 2007). Zimbabwe has since been facing a severe economic decline, and the high inflation rates have resulted in highly priced commodities and services, which have been unfavourable to society as a whole. The highest price increases recorded on a year to year basis were paramedical services, domestic electricity supply, fuel and medical services; with paramedical services facing the highest increase of 48,217% (IMARA, 2007). The high inflation has also prompted food shortages of basic commodities such as bread, resulting in poor nutritional status of individuals, which affects health status.

The poor management of the Zimbabwean economy in conjunction with political turmoil has led to considerable economic hardship. The financial sector was gripped with a cash crisis for three months, starting November 2007. In a bid to address the shortage, the Governor of the Reserve Bank of Zimbabwe proceeded to introduce higher denomination bearer cheques in January (Financial Gazette, 17 January 2008, p1), which accelerated the

[1] The face value of the Zimbabwean dollar was changed and a new range of bearer cheques were introduced that had three less zeroes than the old bearer cheques. The bearer cheques have been adopted as the Zimbabwean currency.

official annual inflation rate to over 100,000% (Financial Gazette, 17 January 2008, p10). This has resulted in most commodities being out of the reach of many in the country. The hyperinflationary environment has eroded salaries and forced the prices of most commodities to be unrealistically high.

In 2007, it was revealed that the population living below the poverty line[2] was 82% (Mail & Guardian, 2007), indicating the growing poor population. The Zimbabwean economy has slumped to its worst level yet, exemplified by an environment of hyperinflation, low economic growth, high government expenditure and high unemployment levels. The macro-economic climate of the country, characterised by these trends has resulted in a lack of basic commodities and a growth in an informal sector, with a large number of the population resorting to cross-border/informal trading. The economic situation and social effects of the events such as ESAP, land reform, human rights violation and destruction of illegal housing has prompted many individuals to migrate to neighbouring countries or overseas. These events combined with the HIV/AIDS epidemic have been a fatal blow to the economy, with nearly 1.3 million economically active persons being HIV positive. By 2000, 10% of the Zimbabwean labour force had been lost to HIV/AIDS. This figure doubled by 2005, and it estimated that by 2010 Zimbabwe will lose a full third of its labour force in the absence of adequate management of the HIV/AIDS epidemic (International Labour Organisation, 2004).



## 1.3 Health Care System of Zimbabwe

The health care system in Zimbabwe can be broken down into two sectors: the public and private sectors. Health care services available can be further sub-divided into modern facilities, transitional facilities and others. Under modern facilities there are public and private clinics and hospitals and mission hospitals run by NGOs. The term transitional facility is used in the country to categorize services rendered by drug sellers, chemists and pharmacists. Finally, in the other category there are traditional healers and faith healers.

Public health facilities are available at four levels, the entry level being rural health centres, rural hospitals and urban clinics; the first referral level being district hospitals; the second referral level being provincial and general hospitals; and the third level being

[2] Those living below the poverty line are considered to live on 1USD or less per day

central and special hospitals (NHA, 1999). In 1997, there was an estimated 1200 public health care facilities, of which 1060 were PHC or entry level facilities (rural health centres, town clinics, and rural hospitals), and 140 public hospitals at the first, second, and third referral level, including several operated by Catholic and Protestant mission (Decosas & Padian, 2002). There is free access at the point of service at rural health care facilities; however this is not the case for urban health care facilities. In the 1990s, public policy stipulated exemptions for citizens earning ZW$400[3] per month or less attending public facilities, but implementation has been difficult (NHA, 1999). User fees are still employed in urban areas, although they were abolished in rural areas in 1995 as the administrative costs of collection did not justify their continual use (World Bank, 1999). The referral chain is of particular importance in the urban areas, whereby individuals who pay user fees at the entry level and use the referral chain, are exempt from payment of user fees at higher facility levels. The government pays subsidies to public facilities for maternal and child services, thereby allowing them to be free at the point of service for these groups of individuals (Mudyarabikwa, 2000).

There was significant growth in the provision of private health care services and infrastructure during the 1990s, but this was mainly in the urban areas. Along with this was the growth of medical aid societies. During this period, an estimated 90% of private facility users were covered by some sort of medical insurance, but this was limited to formal sector employees and their dependants (NHA, 1999), hence in reality a small percentage of the population was covered by health insurance. Public health care facilities have been perceived to be of low quality by a number of individuals, hence a number of individuals opt to use private care facilities when they can pay. Household expenditure on health care has been on the rise from 1994 to 1999; from 30.5% to 45.8% respectively (NHA, 1999), indicating increased pressure on household income. Government expenditure on health care was 3.7% of GDP[4] in 1999 and private spending was 4.1% of GDP (NHA, 1999). In 2005, total expenditure on health care was 7% of GDP, of which government expenditure accounted for 50% of this figure (WHO NHA, 2006). Percentage changes are minimal, but in real terms, this expenditure figure is very small as indicated by the shrinkage in GDP value over the years.



[3] Exchange rate between the ZW$ and US$ at that time was approximately 10: 1. Therefore Z$400 = USD40
[4] GDP (in US$) was 5.9 billion in 1999, and 3.7 billion in 2005 (WHO NHA, 2006)

The government has managed to regulate costs of the private sector through the use of medical aid societies, which are able to negotiate with health care providers. There are 30 medical aid societies registered with the National Association of Medical Aid Societies (NAMAS) in Zimbabwe. These cover a mere 10% of the population (NHA, 1999). The private sector has been associated with perceptions of high quality services and efficiency although at a high cost. The private sector consists mainly of for-profit providers, therefore providers can determine their own fees based on the market; those who are not for-profit are the mission facilities that are run by NGOs (Mudyarabikwa, 2000). Mission facilities range from large hospitals to small clinics. Foreign funded mission hospitals have proved to be well equipped and with good infrastructure (Mudyarabikwa, 2000).

Zimbabwe has incorporated traditional healers in the health care system, requiring traditional healers to be registered with Zimbabwe National Traditional Healers Association (ZINATHA). In a time of economic crisis, financial barriers have prevented individuals from seeking health care at formal facilities; many have opted to utilize the services of traditional healers. There are a vast number of chemists and pharmacists located in Zimbabwe, but the economic situation has made drug products very expensive and few are able to afford the purchase of drugs from these sources.

The number and type of registered health care facilities in Zimbabwe are shown below (Table 1.1).



**Table 1.1** Registered Health Care Facilities

| Type of Health Institution | Number | Type of Health Institution | Number |
|---|---|---|---|
| Government clinics | 550 | Urban Municipal clinics | 80 |
| Industrial clinics | 200 | Hospitals | 500 |
| Mission clinics | 40 | Operating theatres | 10 |
| Private clinics | 50 | Pharmacies | 300 |
| Rural District Council clinics | 300 | Psychological practices | 30 |

Source: EQUINET (2006)

Looking at the human resources side in the provision of health care services, the table below (Table 1.2) indicates the number of health care professionals and the density per 1000 population. Zimbabwe has been shown to be faced with a lower number of human

resources to serve the population, in regard to health care professionals, in comparison to the WHO African region, with pharmacists being the only exception.

**Table 1.2** Health Care Professionals (2004)

| Health Care Professional | Total Number in Zimbabwe | Density per 1000 population (Zimbabwe) | Density per 1000 population (WHO African Region) |
|---|---|---|---|
| Physicians | 2086 | 0.16 | 0.22 |
| Nurses | 9357 | 0.72 | 1.17 |
| Pharmacists | 883 | 0.07 | 0.063 |
| Community Health Workers | 581 | 0.04 | 0.449 |

Source: WHO (2006a)

In summary, there are a number of sources of health care available to an individual. These are private facilities, public facilities, mission facilities, pharmacists and chemists, traditional healers and faith healers. Some individuals may opt for home based care or self care if the perceived need for consultation is low or if they are unable to afford health care from the above mentioned sources.



### 1.3.1 Health Care System: Current Challenges

The health care system has been near collapse due to the pressure of financial cutbacks and obligatory self reliance. This has affected the morale of skilled health care professionals as indicated by numerous strike actions in an attempt to acquire higher wages. For health care professionals, the health care system infrastructure and economic climate has caused unbearable working conditions, resulting in increased absenteeism and consequentially disgruntled professionals leaving the country (Health24, 2007). The increasing brain drain of experienced health care professionals to other countries has affected both the public and private sectors. It has been reported that less than a quarter of all doctors trained in Zimbabwe in the 1990s, currently practice domestically (USAID, 2003).

Apart from personnel, there have been extensive reports of public and some private health care facilities not having stock of drugs and the most basic medical equipment such as gloves (Tren and Bate, 2005). Medical personnel have cited the inability to offer effective care for patients due to a lack of equipment, drugs and supplies, as the most common

reason for resigning (USAID, 2003). The current economic environment places pressure on households, especially the poorest, to meet the rising costs of individual medical care (EQUINET, 2006). Therefore those individuals most in need of health care with the least ability to pay may end up being excluded from receiving adequate care.

The progression of poor economic and social conditions has lead to the deterioration in public service delivery. Basic conveniences such as water and electricity are increasingly becoming a luxury that a select few can afford (Chakaodza, 2008). It is particularly concerning for health institutions to be affected by such inconveniences. In the month of January alone, the country faced three nationwide blackouts (Standard, 3 February 2008, p2). The nationwide power cuts had a disastrous effect on hospitals. One major public hospital in Harare reported ten babies dying on a daily basis in the neonatal unit, as a result of poor electricity supply and chronic shortages of basic essential medicines (Shoko B, 2008a). In February 2008, surgeons and doctors at another major public hospital stopped surgeries in a bid to protest against the poor working conditions and lack of basic equipment (Shoko B, 2008b). Patients were being turned away to the private sector, where they face exorbitant fees. For example, a caesarean section costs a mother ZW$50 million[5] in the public sector and ZW$400 million in the private sector (Shoko B, 2008b). In the same month, the Ministry of Health and Child Welfare approved increases of fees charged at all health institutions (The Herald, 7 February 2008, p3). Exorbitant health care costs, in conjunction with cash shortages and low wages (e.g. a teacher earned approximately ZW$180million in that month), places a significant amount of financial pressure on many households.



The health care system of Zimbabwe faces various challenges. Looking at the supply side of health care, the Parliament of Zimbabwe has highlighted their priority areas and their biggest challenges at a conference. The priority areas are human resources, drugs, equipment and infrastructure, transport and disease burden, in order of decreasing priority. The biggest challenges are foreign currency, inflation, brain drain and response from health care workers such as strikes (CWGH, 2007). The hyperinflationary environment has also made it difficult for the government to budget for various sectors adequately. The 2008 health sector budget was in the quadrillions (CWGH, 2007), but

[5] Exchange rate between the ZW$ and the US$ at that time was approximately: 1 US$ equivalent to between 4-5million ZW$, therefore ZW$50 million = US$10-12

with such a hyperinflationary environment whereby prices of commodities are not certain from one day to the next, the budget is always deemed to be insufficient.

Within the health sector there has been a decline in per capita expenditure in real terms, from US$35 in 1999 to US$12 in 2005, despite a nominal increase in budget allocation from 9% in 2000 to 13% in 2005 (Bwakura, 2007). The budget allocation for the health sector however falls short of the 15% target commitment in the Abuja declaration. The former Director-General of WHO argued that "health systems which spend less than US$60 per capita are not able to even deliver a reasonable minimum of services" (Brundtland, 2000). The amount being spent in Zimbabwe highlights that there are inadequate resources available in addition to funding problems; therefore this impedes the ability for the country to provide adequate and essential health care services. This is further supported with work by Labonte (2004), who stipulates that low per capita spending may not be due to a lack of effort in poorer countries but in fact due to an inadequate pool of public resources. In February 2008, only two out of seven proposals for funding in the health sector were approved. Nonetheless, Zimbabwe received US$40 million from the global fund in order to combat HIV/AIDS, Malaria and TB (The Herald, 7 February 2008, p3). This is a great accomplishment, but in an environment riddled with inefficiency in health care delivery as shown by the lack of equipment, medical supplies, adequate water and electricity management and medical personnel, the basic environment to ensure and prioritize the health of the population is not present. Furthermore as with many developing countries, there is a problem of ensuring that global funds are used for their intended purposes and not misappropriated by corrupt officials (Labonte, 2004). Given these circumstances, the extent to which the funding can be effectively used to address health care problems may be constrained.



## 1.4 Problem Statement

The economic situation in Zimbabwe has adversely affected all sectors including the health care sector. Social welfare of the population is of great importance, and the current situation in Zimbabwe poses a serious health risk to the population of Zimbabwe. Problems in Zimbabwe have stemmed from ESAP, the HIV/AIDs epidemic and the economic decline. This has had a tremendous effect on health and the health care infrastructure, which is associated with a decline in health status of individuals and decline in the quality and availability of health care services. This is of concern for the

population as whole and in particular for vulnerable groups such as the poor. It is therefore important to understand how and where individuals are using health care services. Uncovering the underlying determinants of health care use or non use can aid in understanding the population needs and barriers to use health care services. This leads to the research question:-

*What factors influence the utilization of healthcare services in urban areas in Harare, Zimbabwe during this period of an economic crisis?*

## 1.5 Aim and Objectives

### 1.5.1 Aim

The aim of the study is to establish the patterns and determinants of utilization of health care services in urban areas in Zimbabwe, during an economic crisis.

### 1.5.2 Objectives

- To establish the patterns of use of health care services in urban areas in Zimbabwe
- To determine and understand the factors that influence the use of health care services in an urban community in Zimbabwe.
- To identify barriers to health care service utilization.
- To evaluate the factors that determine the use of certain types of health care providers.
- To understand the impact of differing illness and disease severities on an individual's choice in the utilization of health care services.
- To understand how the economic crisis has affected the health seeking behaviour of the population.
- To provide recommendations to health authorities based on the acquired data regarding the use or non-use of health care services, so as to aid in health sector planning.

## 1.6 Rationale and Justification

The economic and social pressures have befallen a vast number of individuals in Zimbabwe, thus leading to a need to understand the population response to this through the assessment of health seeking behaviour and the use of health care services. The patterns and determinants of health care services use can aid in understanding the responsiveness of individuals to the current health care system in light of the economic climate. There are numerous challenges faced by the health care system as indicated earlier. The information obtained from a detailed assessment of health care utilization patterns is imperative for any social reform that aims to improve on the responsiveness of the health care system in place to the needs of the population that it serves. Furthermore it is regarded as the first step in making a health care system more effective (WHO, 2003).

Individuals are regarded as consumers that can make choices, as they behave in ways that influence their health, including their choices about seeking and utilizing health care services. Therefore assessment of utilization patterns can be instrumental in understanding what influences individuals to use or not use health care services as well as to uncover the underlying factors (WHO, 2000). Upon understanding this, development and implementation of policies that are able to influence supply or demand of health care can be prepared. The demand side refers to the need of individuals, whereas the supply side addresses the health care services. WHO (2000) states that 'A system that is more responsive to what people want and expect can also make for better health, because potential patients are more likely to utilize care if they anticipate being treated well'. Given the history and current situation of Zimbabwe in regard to the economy, social welfare, health and the health sector, it would be important to assess the behaviour, perceptions and attitudes of individuals on available health care services.

Utilization is an important measure that has the ability to capture individual behaviour, attitudes and perception alongside the responsiveness of the health care system. It is therefore important to improve information on utilization of health care services in Zimbabwe, so as to understand utilization behavioural patterns and the determinants from a developing country perspective with a local focus. There has been extensive research in Zimbabwe focusing on disease burden and not on the utilization of health care services; hence it also would be of importance to explore this area. In 2003, WHO stated, "Although there are good data on national patterns of risk and disease today, few

countries break this information down sub-nationally by income level, gender or vulnerable groups...Even fewer countries have information on the health-seeking behaviour of those groups or their utilization of health care facilities...Without such information, the effectiveness of interventions is difficult to assess and improve performance." (WHO, 2003). A lack of adequate health information, as well as shortages of personnel, contribute to the potential collapse of some health care systems and threaten the long-term viability of others (WHO, 2003). With little information present on the determinants and utilization of health care services in Zimbabwe, a local focus can aid in the future planning for health care services. In an environment facing significant budget constraints, priority areas can be determined by public policy makers and health sector planners such as building new primary health care facilities, improving existing infrastructure, improving drug supply or increasing human resource capacity in the health sector.



## 1.7 Chapter Overviews

**Chapter One** is the introduction, which provides a brief background on Zimbabwe in regard to the progression of the social, health and economic conditions from the 1980s to the current situation. Important country events such as the structural adjustment policy and land reform are also highlighted. Information regarding the Zimbabwean health care system is also divulged. The introductory chapter also covers the problem statement, the aims and objectives, plus the rationale and justification of the study.

**Chapter Two** is the literature review, which addresses the definition of key terms and concepts relevant to the study. This chapter also reviews theoretical literature and empirical literature on health seeking behaviour and health care utilization. The various models presented in the theoretical literature provide an understanding of utilization as a concept and the empirical literature reviews studies from both developed and developing countries.

**Chapter Three** is the conceptual framework, which presents a framework for assessing various factors that influence health care utilization.

**Chapter Four** is the methodology, which provides a detailed description of the research methods used in the study such as the study design, sampling, the survey instrument, quality control and data management. This chapter also provides information regarding to the study population, the survey sites and the study limitations. Furthermore a framework for the analysis of the results in regard to the study variables is presented.

**Chapter Five** presents the results of the study. Information regarding the research findings, data analyses and sub-conclusions are provided. Descriptive statistical analyses and the regression analyses results are presented.

**Chapter Six** is the discussion and recommendations, which explains and interprets the various research findings and provides a comparison with the evidence found in the literature. This is the final chapter that rounds up the study findings, thus policy recommendations and the scope for future research are presented.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

In this chapter, literature on health care utilization and health seeking behaviour is reviewed. These include theoretical literature on utilization as a concept and the determinants of utilization. Furthermore the empirical literature from developed and developing countries is reviewed. This was done so as to draw out a wide range of views and approaches towards studying utilization and health care seeking behaviour.



## 2.2 Definition of Key Terms

### 2.2.1 Health and Health care

Health is valued by all individuals, as improved health has the ability to increase one's productivity, make one feel better and encourage participation within the household and the community. Evans and Stoddart (1994) provide a useful insight into how health is produced and the consumption of health care services. WHO (2006b) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease". This definition implies that health is affected by all human activity. Nonetheless this definition provides valuable insight into how health status can be affected by a multitude of factors (e.g. social and environmental) besides health care. Health can also be defined in regard to the behaviour of the health care system – i.e. health is an outcome of health care. Health is primarily a human right, i.e. everyone has a right to the highest attainable standard of health (UN International Covenant on Economic, Social and Cultural Rights, 1966). The right to health makes government responsible for the prevention, treatment and control of diseases in addition to the creation of an environment that supports access to health care services and ensures individuals can be healthy (Braveman & Gruskin, 2003b). With every country having health-related rights in addition to the role a government needs to play, the delivery of health care becomes important. Therefore health care cannot be viewed as an ordinary commodity due to its nature.

Health care is the prevention, treatment, and management of illness as well as the preservation of mental and physical well being through services offered by medical, nursing, and allied health professions (IJSCA, 2008). WHO (2000b) stipulates that health care embraces all the goods and services designed to promote health, including "preventive, curative and palliative interventions, whether directed to individuals or to populations". The means in which health care goods and services are distributed has a direct bearing on the welfare of individuals (Daniels, 1985). What differentiates health care from other commodities is that it has the ability to contribute to health or enhance health status, thereby enabling individuals to participate in a number of activities in society – e.g. earn a living and take care of their family. Another means to view this is by looking at the contrary, when one is in ill-health they are severely constrained in regard to what activities they can perform. Health care is viewed as a merit good – which is a good that society thinks everyone should have regardless of whether the individual wants it or not. This raises the notion of equity that lies within societal objectives; this is discussed further on. The right to health indirectly implies the right to health care (Daniels, 1985). Health orientated activities – in regard to health care provision and distribution, therefore become important as they have a significant impact on society. Evans and Stoddart (1994) stipulate that it is important for a society to spend adequately on both health care and other health enhancing activities (e.g. health promotion) in order to enhance the health of a population. A large amount of resources are spent on the production and distribution of health care. Thereby revealing the importance of understanding how the availability and use of health care services affects the health status of individuals and populations.



### 2.2.2 Health Care Utilization and Health Seeking Behaviour

Health care utilization has been a widely explored topic in the assessment of the responsiveness to existing health care services by individuals. Health care utilization has been defined by Menec et al. (2002) as a measure of a population's use of health care services that are available to them. The Pan American Health Organization (PAHO, 1999) defined health care utilization as "a result of multiple factors that influence the biological need for health interventions, access, demand and actual service usage". These definitions reveal that in conceptualizing utilization, there is need to consider the extent to which individuals use health services in addition to the underlying determinants that promote and/or

prohibit use. Turning to the practical approaches, Lawson (2004) measured utilization by assessing whether a person has sought medical care for any illness. In another study, by Buor (2004), utilization was measured by the number of times a person has attended a hospital or health centre to receive care. Thus health care utilization can be viewed in various dimensions, specifically, by assessing if there has been contact with or by measuring frequency of use of health care services. ***In this study, health care utilization was defined as a visit to a health care provider or facility by an individual in the event of an illness.*** Therefore contact with and not frequency of use was the focus in assessing health care utilization in this study.

Health seeking behaviour is the decision making process involved from the perceptions of an illness to the actions employed when attempting to find care. Work by Christianson (1976) shows that in a period of illness a patient makes health care decisions in stages. The awareness of an illness and the decision of whether to seek care or not is regarded as a single stage. The subsequent stages are dependent on the outcome of the first visit; hence the patient decides whether to seek more treatment or not based on the first visit outcome. It is important to note, that use of health care services is an individual behavioural characteristic (Anderson, 1973). Health seeking behaviour and health care utilization is also influenced by interaction with family, a community or in the organization of health care services (Shaikh & Hatcher, 2004), which can contribute to significant changes in actions pursued. This makes utilization a very powerful measure that has the ability to incorporate individual behaviour, perceptions and attitudes that link to the health care systems' responsiveness. Understanding the determinants of utilization of health care services at the individual level can aid in the identification of barriers to the use of health care services and the specific conditions under which individuals consult health care services. It also provides a framework for strategic policy formulation, based on information relating to utilization behaviour at the individual level, and the underlying factors that determine these behaviours (Shaikh & Hatcher, 2004). Understanding these determinants also provides a basis upon which to reform health policy Lawson (2004).

Utilization has been extensively discussed alongside equity, and often confused with access, but both (utilization and access) still do have important implications for health policy objectives. Utilization is a function of both supply and demand (i.e. need) whereas access is wholly a function of supply – which encompasses the opportunity to receive health care regardless of exercising the notion of receiving care or not (Mooney, 1983). Therefore utilization of health care services is dependent on two key areas, firstly access (i.e. supply), which must be well organized, and secondly consumer perception of need and the likelihood of benefiting from a service (Mooney, 1983; WHO, 2003). Consequently, the more accessible a health care service is, the more likely one should feel enabled to utilize that service.

### 2.2.3 Equity and Utilization

Equity can be defined in terms of utilization, where individuals who have equal health care needs should be able to demand the same level of health care, given that they face the same supply (Mooney, 1983). This means that individuals with the same level of health care needs make similar use of health care services. Equity is very important and it is seen as a form of social justice or fairness that encompasses the notion of distributional justice (Braveman & Gruskin, 2003a). Equity in health implies addressing the differences in health status that are unnecessary, avoidable and unfair (Mudyarabikwa & Mbengwa, 2006). Differences in health status can be observed across different social and economic groups, geographical areas, age groups, racial groups and between genders (Braveman, 2003; Mudyarabikwa & Mbengwa, 2006). In the Zimbabwean context, these disparities have been exacerbated by impact of HIV/AIDS, decreased government expenditure on social services, the increase in the cost of health care services and the inability for health care facilities to deliver adequate care. This has hit the country as a whole, but of particular concern is the poor community –especially the growing urban poor. Those falling into these socially disadvantaged groups (e.g. the poor, those of low socio-economic status) are at higher risk of ill-health. This is inherently unfair (inequitable) and unacceptable.

Social and material inequalities within a society lead to health inequalities, therefore it is important to identify, quantify and reduce the risks to health that are a result of specific local,

social, behavioural and environmental factors (McMichael & Beaglehole, 2000). Equity therefore encompasses identifying and overcoming these obstacles that keep disadvantaged groups in society from receiving the complete benefits from health care interventions (Braveman & Gruskin, 2003b). When an individual's lack of resources restricts the care they can receive, the health care system can be deemed to be inequitable. Equitable financing in health care is an important policy objective; therefore it is imperative that use of health care services is not according to ability to pay. This would increase the access to health care for the poor. Furthermore, if health care finances are organized and utilized effectively, this ultimately leads to an improvement in health status.

One of the important aspects in monitoring equity in health and its determinants is to the identify priority social groups, in addition to identifying indicators of health status, determinants of health and health care utilization (Braveman, 2003). Equity in utilization is therefore crucial for the reduction of health inequalities, thereby promoting better health for individuals and the population. Barriers that limit the equitable utilization of health care services by the population need to be observed so as to address health care needs in an equitable and efficient manner. An assessment of utilization and its determinants are useful in health care reform. Daniels et al. (2000) provided useful benchmarks of fairness for health care reform in developing countries. These benchmarks, among others include assessing health care performance in regard to financial and non-financial barriers to seek care, equity in financing health care, in addition to efficacy, efficiency and quality of care. Hence it is important to identify and examine the extent of inequalities in the utilization of health care services so as to find appropriate means to rectify these problems. The knowledge obtained from this study can be applied though the development of relevant social policies.



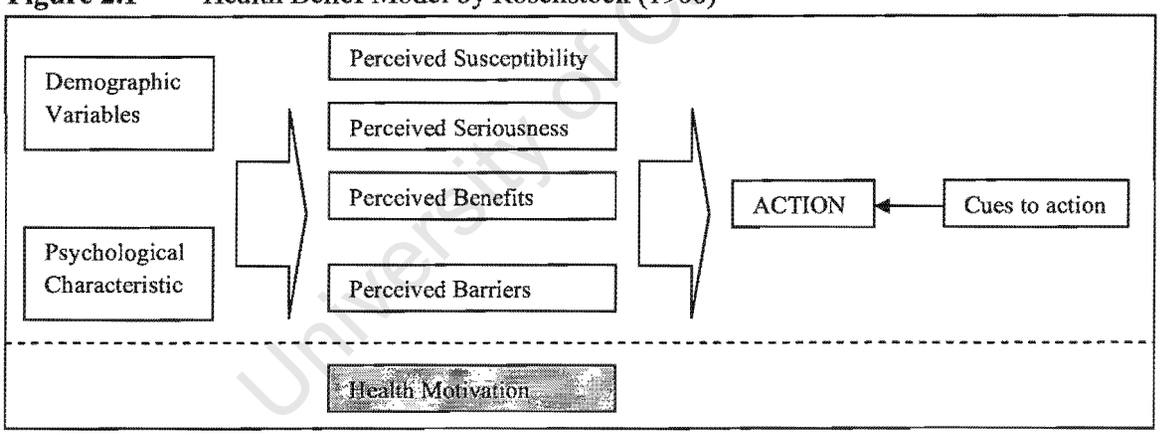
## 2.3 Theoretical Literature

There are a vast number of models available to assess utilization and health seeking behaviour. These models stem from social psychology, medical sociology and medical anthropology (Hausmann-Muela et al., 2003).

### 2.3.1 Health Belief Models

The earliest models based on social psychology in the 1950s were Health Belief Models (HBMs) (Hausmann-Muela et al., 2003). These models are concerned with individual attributes, social and behavioural conduct (Wan & Soifer, 1974). An example is the Rosenstock (1966) HBM, which is useful in determining why people use health care services (See Figure 2.1). The model relates health seeking behaviour to perceived susceptibility of contraction of illness, perceived seriousness of the health problem, perceived benefits of taking action in addition to the perceived barriers to taking action and finally the cues to action (Rosenstock, 1996). The cues to action consist of various internal and external factors such as advice from a family member or a mass media campaign. The individual health beliefs in coalition with the cues to action, aid in creating an enabling environment where subsequent action can be taken.

**Figure 2.1** Health Belief Model by Rosenstock (1966)




Note - HBM by Rosenstock (1966) above the dotted line, the shaded area represents the modification by Sheeran & Abraham (1995)

A more recent variant of this model is the HBM presented by Sheeran & Abraham (1995), which included health motivation or readiness to be concerned with health status as an important component in health seeking behaviour (Figure 2.1). HBMs have the notion that health beliefs stem from an individual's demographic profile and psychological characteristic which condition why one uses health care services.

HBMs have proven useful in health promotion for diseases such as TB and malaria. For example, individuals who live in malaria endemic areas express that mosquito-nets are ineffective, which indicates that they have perception that the disease is not severe and it is not a threat (Hausmann-Muela et al., 2003). However, HBMs on the contrary have been criticized for failing to recognize that there is no comprehensive evidence that attitudes and beliefs cause behaviour; there is also concern as to how useful HBMs are in predicting the use of preventative services (Korbin, 2004). Since the HBM is centred on the personal characteristics of an individual, it tends to make individual responsible for their inadequate health seeking behaviour, yet there may be other factors influencing this, such as provider related factors or previous experiences. In other words, the model overestimates the capacity for an individual to choose and follow through seeking adequate health care.

### 2.3.2 Socio-Behavioural Models

Another type of model used to study health care seeking behaviour is the socio-behavioural model, such as the Andersen Model (1968) (see Figure 2.2). The main components of its framework indicate that societal determinants and the responsiveness of the health system affect individual determinants of utilization (Andersen and Newman, 1973). The individual determinants denote how socio-cultural, economic, health care related and psychological factors influence the use of health care services. The assumption of this model is that the use of health care services is associated with three main components, which have the various determinants grouped into predisposing factors, enabling factors and medical need factors, as discussed below:

(a) The predisposing component includes socio-demographic factors (age, gender, level of education, family size, past illness etc) and it also includes attitudinal-belief factors (illness values, knowledge about disease etc). These are factors that are present prior to the onset of illness that may influence the use of health care services.

(b) The enabling component includes family factors (income, health insurance etc) and community factors (social support, price of health care services etc). These factors facilitate access to health care services.

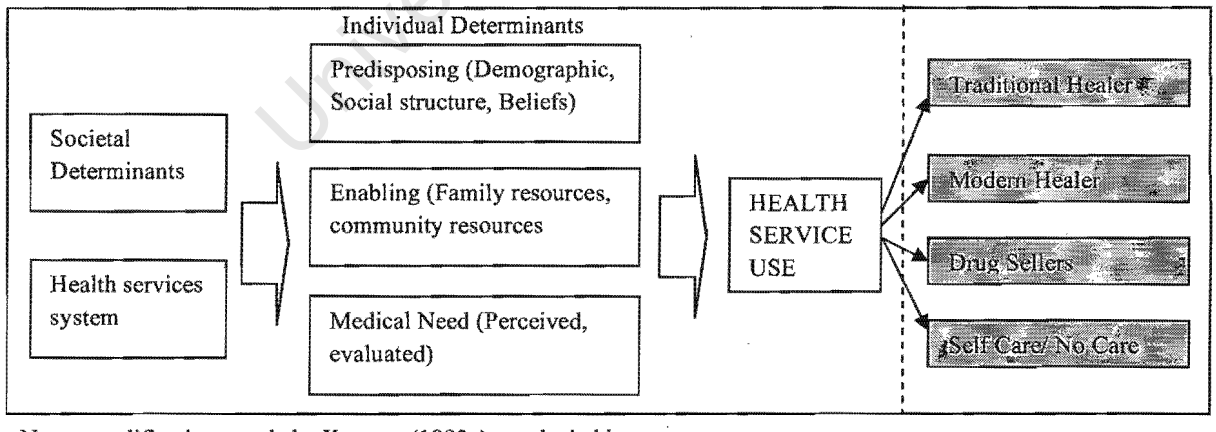
(c) The medical need component captures the individual perception and evaluation of illness (symptoms, diagnosis etc).

These factors play a role in influencing the utilization of health care services. In the use of health care services there are three dimensions considered, that is the type of facility, the purpose of seeking care such as preventative care and the unit of analysis whereby there's assessment of contact or frequency.

The Andersen model is very useful in that it provides a wide range of determinants that influence the utilization of health care services. This model has also been a widely adopted conceptual framework for assessing the use of health services and specifically treatment selection. It has been used in a number of developed and developing countries to gain evidence on the identification and weighting of the various factors that influence health service use (Hausmann-Muela et al., 2003). The limitations of the Andersen model are that although it assesses the levels of use and the determinants that predict utilization of health care services, it does not specify how and why that occurs (Stekelenberg, 2004; Weller et al. 1997). Since the model is Western-based, it may pose a restriction in regard to country context applicability when assessing health care utilization in developing countries. Korbin (2004) criticizes the model for having too many variables, which may be difficult to collect in their entirety thus limiting the ability to test the rigidity of the model.



**Figure 2.2** The modified Andersen Model (1973)




Note - modifications made by Kroeger (1983a) are shaded in gray

A variant of the Andersen model has been designed by Kroeger (1983a), which is based on similar variables but it assesses these factors in regard to how they affect the selection of

different health care providers such as traditional healers, modern healers, drug sellers or opting for self care (Figure 2.2). Socio-behavioural models are therefore useful as a prediction tool given a set of factors but they lack specification as to why individuals use health care services.

The above mentioned models have been criticized by Hausmann-Muela et al. (2003) to be centred on patient characteristics thus making individuals responsible for their inadequate health care seeking behaviour, yet not all individuals behave in a manner that provides them with maximum benefits. The models hence are based on the utilitarian assumption that all individuals wish to maximise their utility. This may not be the true picture in reality as there are emotional and irrational actions that are employed when making health care decisions. The context in which behaviour occurs always has a strong ability to also alter the factors in the various models. Nonetheless, these models are useful predictor tools and they provide a very useful framework to assess health care utilization.



### 2.3.3 The Four As

Health seeking behaviour has also been assessed in relation to the 'four As', which are availability, accessibility, affordability and acceptability (Hausmann-Muela et al., 2003). Availability denotes the geographical distribution of health care services; accessibility involves transport and roads; affordability involves factors such as cost of treatment and opportunity costs; acceptability relates to cultural and societal factors. This approach has mainly been used to highlight issues of access from varying dimensions such as the physical or economic aspect. The advantage of this model is that it has been widely used and it allows for easy identification of potential barriers in the use of health care services (Hausmann-Muela et al., 2003).

### 2.3.4 Grossman's Model

Another means to look at utilization and health seeking behaviour is through the use of Grossman's model (1972). This model goes beyond looking at demand analysis, where an individual is regarded solely as a consumer, but it is also concerned with how an individual

'produces' health (Dolan, 2003). Grossman (1972) views health as both a consumption good and an investment good. It is a consumption good as one feels better when they are in healthier shape, and it is an investment good as productivity in and out of the household can be improved when in better health. An individual acts as a 'producer' by investing in health through the purchase of market inputs such as food, clothes and medical care alongside spending time to produce health in this manner. Education also plays an important role in the investment of health. Grossman (1972) has the notion that individuals who are better educated are more efficient producers of health and invest more in market inputs that aid in enhancing their utility. This is facilitated through the availability of higher wages and increased awareness of the benefits investing in health has amongst better educated individuals. Higher years of formal schooling are associated with an increase in income, better occupation and good health.

Grossman (1972) also views health as a capital good, where every individual has a stock of health that depreciates over time through an increase in age, a lack of investment in health and partaking in activities that do not enhance health, such as smoking and drinking. The depreciation in health stock with age can be observed through looking at elderly individuals, who have a lowered health stock, which presents as a higher and more frequent illness burden, thus prompting these individuals to seek health care more often. Grossman's Model (1972) has been valuable in the analysis of individual behaviour and predicting the likely effects of policy changes. It also has a few drawbacks, namely, it assumes all individuals have perfect information regarding health care investment for now and the future. It also ignores the role of health insurance and it assumes that health care is a constant life-time investment (Dolan, 2003).



### 2.3.5 Summary of Theoretical models

Health seeking behaviour encompasses the decision making process during which an individual is aware of their illness and decides whether to seek care or not. A visit to a health facility is assumed to be an outcome of a patients' decision making process (Mwabu, 1986). The described models provide very useful approaches in the assessment of health care utilization and these models allow one to look at utilization and health seeking behaviour

from different points of view. However it is important to consider both the advantages and limitations to their use. Nonetheless, the models portray that decisions to seek care and to utilize health care services are not independent, and can be influenced by a magnitude of factors. These factors include current life circumstances in addition to beliefs regarding health. These factors were classified below as:

(a) Demographic and socio-economic factors - age, gender, marital status, household size, education, occupation, income, health insurance, religion, ethnicity, geographical location

(b) Attitudes and beliefs towards health and health care services

(c) Provider related factors – cost, service quality, accessibility, distance, staff attitudes

(d) Illness related factors – severity , type, length

## 2.4 Empirical Literature

There has been a growing amount of literature on health seeking behaviour and the determinants of health care utilization, especially in the context of developing countries. This section provides a review of studies performed in various developed and developing countries, thereby providing valuable insight into the empirical approaches in the measurement of health seeking behaviour and health care utilization. The empirical literature has been grouped according to countries for which there was empirical literature available.

### 2.4.1 Pakistan

A qualitative study in Pakistan by Shaikh & Hatcher (2004) employed the use of Kroeger's Model (1983a) in the assessment of health services utilization and health care seeking behaviour. The dependent variable was utilization. The leading causes of poor utilization of health care services identified, among other factors, are: low socio-economic status, high service and transport costs, lack of physical access to a health care facility, cultural beliefs and perceptions of disease, a large family size and low literacy level of mothers. Low socio-economic status is linked to a lack of household goods or assets in addition to low income. This consequentially is a barrier to the use of health care services in terms of affordability,

thereby resulting in a limited choice of health care options and health care providers. Cost has been an important barrier to seeking health care, the additive effect of direct (e.g. consultation fee) and indirect costs (e.g. transport fare), turn out to be burdensome. Inevitably, high costs in seeking care are a deterrent in the use of health care services. A lack of physical access takes account of - a long distance to the health care provider, a shortage of transport and poor roadwork. These constraints contribute to higher costs of travel and as a result lead to a decrease in the use of health care services.

Cultural beliefs and practices were shown to be important in health seeking behaviour. In Pakistan, the advice of older individuals in society was particularly important, as it had to be heeded by women and this advice not only had the ability to delay seeking care for the women, but for their children too. Cultural practices and beliefs were also shown to affect the recognition, perception and awareness of an illness, in addition to affect the acceptability of a health care service. Individuals with such beliefs and practices tended to opt for self care, home remedies or consultation of traditional healers. Cultural beliefs were observed across all ages, socio-economic groups and across varying levels of education. A large family size and a low level of education of women were linked to poor utilization of health care services. This may be attributed to the various influences of other individuals in the household and a lower availability of finances to cater for everyone in the household in need of care. The low availability of finances within a household can play an important role as they can limit the choice and ability to seek health care.



Gender disparities in the use of health care services have been important in Pakistan, with men, who head the household and have financial control, are the sole decision makers of where and when a woman seeks health care. The differences in the roles and the status of men and women in any society or country context become profoundly important in order to understand the gender disparities. Women in the Pakistan society were noted to be vulnerable and disadvantaged in regard to education and they are socially and economically dependent on men. After a reported illness episode, women were less likely to seek care than men. The severity and number of days of the illness did play an important role in the decision to seek health care or not. Individuals suffering from minor ailments, such as a fever, tended to opt

for home remedies, whereas those ill for a longer period of time, indicating a more severe illness, tended to seek care from formal health care providers. The type of health care facility also played a role in health seeking behaviour. Public health care services tend to be under-utilized whilst private facilities have reported a higher pattern of use. The author attributed this to easy access, more flexibility in opening hours, shorter waiting periods, the availability of drugs and better perceptions regarding quality of care in the private facilities.

### 2.4.2 Brazil

A study by Baris et al. (2000) in Brazil on the determinants of utilization of health care services used the Andersen Model. The study used a quantitative approach. The dependant variable, utilization, was measured by the number of visits made to a health care provider during the last 6 months for hypertension and diarrhoea, and the total number of visits made during pregnancy for prenatal care. The data was analysed using path analysis in addition to a least squares step-wise multiple regression analysis. The study found that use of health care services in Brazil is influenced by income level, level of education of a mother, perception of need for care, attitudes and beliefs regarding health services and health coverage. This was similar to the findings in the study in Pakistan. Affordability of health care services also remained a critical issue as it was a barrier in the use of health care services. Individuals with low income, tended not to use health care services as out-of-pocket payments were very high, thus leading to a decline in the use of health care services. The author revealed that those with higher education had a higher income and were able to afford out-of-pocket payments and they felt entitled to use health care services. Out-of-pocket payment, gender, social support, as well as attitudes and beliefs regarding the health system influenced an individual's perceived need for care. Hence if the valuation for out-of-pocket payment for care is high, the perceived need for care was low. Looking at gender, women's perceived need for care changed based on their income, such that women who were low income earners had a lower perceived need for care. Negative attitudes about the health care system in place proved to lower the perceived need for care; therefore use of health care services was lowered. A social support structure in place enhanced the use of health care services. Brazil has been attempting to reform its social support structure which encompasses addressing issues of inequality in the distribution of health care resources and exclusion of particular groups, namely those least able to pay for health care services. The Brazilian government has

managed to improve health spending per capita, thus preventing the likelihood of those least able to pay from being excluded in the use of health care services. In Brazil, health care services have not been physically accessible to all in an equitable manner, which presents as a barrier to use health care services. The Brazilian government has attempted to address this by increasing health care service coverage, so as to promote use of health care services.

### 2.4.3 Kenya

A study by Bradshaw & Mbatia (2003) in central Kenya used a quantitative approach to assess health care utilization. The dependent variable, utilization, was measured as the frequency of use of health care services. The dependent variable was dichotomized into high frequency users and low frequency users. A logistic regression model was used to analyze the data, which was from a survey in 1995, when Kenya was going through a period of economic decline. The factors influencing the frequency of health service utilization were: age, level of education, disease type, perceived efficiency (indicated by perceived quality of care), perceived cost, socioeconomic status and time taken to reach the health care facility. These factors had varying influences at the different types of facilities studied - government facilities (hospitals and clinics) and non-government facilities (mission facilities and private clinics). Age had an influence in the utilization of services, with older individuals tending to use health care facilities more. This was attributed to an increase in disease burden and severity of illnesses as one ages. It was noted that older individuals and those with a higher education tend to seek care at private facilities rather than government facilities, which ties in with perceptions of quality of care and efficiency. Better educated individuals tend to have a better income earning opportunity; therefore they are in a better position to seek out and afford to seek private care. The disease type was another important factor that influenced where an individual decided to seek care. The study focused on malaria in the analysis, as this was viewed to be the most serious health problem in the region. Those ill with malaria were more likely to use government facilities than non-governmental facilities, regardless of the quality of service received, as government clinics had much cheaper medicines available.

Efficiency (assessed through perceptions of quality of care) had a positive effect on utilization. In government hospitals and in private clinics, high perceptions of efficiency

promoted the use of that service. Perceptions in regard to quality services rendered are an important determinant of utilization; this once again is similar to the findings in the Pakistan study. Perceptions of high costs did, expectantly, impede the use of private health care facilities, but nonetheless citizens opted to use the private facilities when they could afford to. Perceptions of high cost had a negative effect when it came to the use of mission facilities; they tended to charge using a sliding scale thereby making services cost more than the government facilities thus resulting in a decrease in utilization. Interestingly, high user fees and costs at government hospitals did not present as a barrier to utilization. The author attributed this to the notion that individuals have become used to the idea of paying for health care services. Furthermore, paying for health care services at government clinics was viewed as an indicator of quality care by some – therefore clinics that charged user fees were deemed to provide better services than clinics that do not.

Household level factors such as socioeconomic status and total annual income were found to influence the use of health care services. Individuals of a high socioeconomic status as well as a high total annual income were more likely to utilize private clinics and government hospitals. Looking at the former, this fact was attributed to the ability of the individual to have increased access to private doctors and ability to pay for medical insurance. Addressing the latter, this finding was due to the fact that individuals of such a socio-economic profile do not have to worry about high costs and user fees at hospitals as much as families of a lower socio-economic status. The time taken to reach a health care facility also had a strong bearing on utilization, as an increase in time taken to reach a facility was associated with a decrease in the utilization of health care services. But this finding was for government facilities and not for non-government facilities. This was attributed to the fact that individuals seeking care at non-government facilities have more money and better means of transportation to the facilities. Once again, the importance of physical access in relation to utilization of health care services has been raised and findings have been similar to the studies mentioned earlier.

### 2.4.4 Burkina-Faso

A study by Develey et al. (1996) in Burkina-Faso explored the utilization of health care in an urban area using the model proposed by Kroeger (1983a). The study was quantitative in

nature. A bivariate analysis between the factors that influence health seeking behaviour and the various choices of care (no care, self-care, healer, dispensary, hospital and private doctor) was performed. This was followed by a logistic regression. The dependent variable, choice of care, was dichotomized into two categories indicating the presence of a visit to a modern health care provider (dispensary, private doctor or a hospital) and the absence of such a visit. The choices of health care were found to be influenced by age, socioeconomic status, reported illness characteristic (type, length, severity) in addition to cost of care and cost of transport. This further supports similar findings in other studies in developing countries. Similarly, as with previously discussed studies, an increase in age was associated with an increase in use of health care services. In particular, socioeconomic class had a significant association with health care seeking behaviour. Those of low socio-economic class consulted with modern health care providers less and opted for no care more often than all the other socio-economic classes collectively. Illness characteristic was also important. Fever, various pains and digestive problems were not found to influence health service use. But those with respiratory problems, high severity of illness or long duration health problems were more likely to seek care, particularly in modern health care facilities. Whereas minor problems or short duration illnesses resorted to self care. Cost of care and cost of transport once again showed to be an important factor, as high costs presented as financial barriers to access health care services.

Contrary to findings in other studies, the following factors had no influence in regard to choice of care: gender, household size, level of education, religion, ethnicity, marital status, occupation of household head and distance to closest health care provider. Of particular interest is how distance was found to be an insignificant contributor to health seeking behaviour. This was attributed to the fact that the study population resided within 3km of a health care facility. It was also uncovered that patients were also willing to travel further than necessary to find appropriate care, thus bypassing facilities that are closest to them. The author noted that services located a large distance from a patient's home setting, tended to be better equipped and well staffed. Thereby further supporting that the quality of care is important.

### 2.4.5 Ghana

A study in Ghana by Buor (2004) explored the role of gender on utilization, thus leading to the development of a framework depicting utilization by gender. The key components of the framework are government policy, provider characteristics, male utilization, female utilization and with the central component – utilization of health care services. The study was quantitative in nature and a multiple regression analysis was performed to explore the influence of various variables on utilization by gender. The dependent variable, utilization, was measured by the number of times an individual attended a hospital or health care centre in the last three episodes of illness, therefore the variable was classified into four categories, from no use to frequent use (all 3 visits). The key variables found to influence utilization (in order of importance) were for males: distance, education, cost of service, quality of service, income and health status; for females: distance, education, cost of service and income. Before delving deeper into the influence of various variables on utilization, it is important to note that gender disparities had a negative impact on the use of health care services, with women being found to have a lower utilization. In Ghana, men were considered to be the primary decision makers and the controllers of women's financial resources. These findings are consistent with those in Pakistan, where the roles and status of women is predetermined by societal values – whereby men are considered to be the sole decision makers. Low utilization by females was also attributed to the notion that women are too busy with domestic duties, thereby limiting the time available to attend a health care facility unless it is an emergency.

Greater distance from a health facility was found to be an impeding factor in the utilization of health care services for both genders, although this had a greater impact on women. This was due to specialist services not being equitably distributed in the region, thereby leading to women having difficulties of transporting to and using the health care service. Education was found to be a key determinant of utilization, with those of lower education levels having low utilization levels of formal care. The author noted the importance education by indicating that illiteracy links to problems of unemployment, low assessment of health need, poverty, self medication, little or no health insurance and the increase in use of traditional medicines. The relationship between illiteracy and these consequences results in poor utilization of health care services. In developing countries poor utilization has been strongly linked to poverty. Another important factor in utilization was the place of residence. In many developing

countries, facilities tend to be concentrated in urban areas; therefore utilization in such areas tends to be higher.

The cost of health care services was an important restrictive factor in the use of health care services, although this influence was slightly higher for males than for females. The notion of cost as an impeding factor in utilization has been consistent with previously mentioned studies. Looking at the enabling factors – health insurance and income, it was observed that health insurance coverage encouraged the use of health care services. The author stipulates that access to health insurance is a function of education. Educational level of women, in the Ghanaian country context, becomes important because of the underlying relationship between illiteracy and poverty. Income was equally important, which affects the ability to pay for a health care service. Therefore a high income encouraged the use of health care services, especially for women as they usually incurred higher service costs due to their comparatively weaker health status. This was important in regard to equity as the author noted that men earned more than women in the Ghanaian society, but when it came to health care services, women paid more, thereby putting women at a disadvantage in the utilization of health care services.



Those residing in urban areas tend to have a better opportunity to earn a high income, thus they are at an advantage of access and use of health care services. With 68% of the population deemed to be living below the poverty threshold line in Zimbabwe, income becomes an important factor. Quality of service was another factor found to influence utilization, with individuals being driven to use services that offer high quality care. Recognition of quality of service in the study was linked to education and high income. Buor (2004) stipulates that "It takes a minimum level of education to recognise what quality of care entails and where to access it." In order to access quality services, an individual needs to be financially empowered. Health status had a significant influence on utilization by males, but not on females, meaning that males were more likely than their female counterparts to seek care if they fell sick. The author noted that health status was a function of education and income, which ties into the similar notions surrounding quality care. The following variables

were classified as restrictive factors that hamper utilization, although they were found not to have a significant influence on utilization – waiting time and transport cost.

### 2.4.6 Uganda

A study by Lawson (2004) in Uganda explored the importance of other determinants of health care utilization besides income and user fees. The study was quantitative in nature, with the dependent variable, demand for care (utilization), classified into four categories (no care, private hospital, government hospital and drug store/pharmacy/clinic). A multinomial logit regression was used to analyze the factors influencing the use of health care services. The author found that age was an important determinant, with increase in age increasing the demand for health care, especially for women. This supports findings in other studies where age is an important factor. Income was another important determinant, with those with higher incomes resulting in an increased demand for health care services. This was also gender biased, as women with a high income tended to demand health care more than men. Thus indicating women who have access to a higher income feel more empowered in their decision making process when seeking health care. A high income also influences the type of care sought, as shown by the fact that individuals earning more tend to use private care more and traditional health care less.

Supporting findings in previous studies, Lawson (2004) reveals that those with a higher education levels demanded health care services more. A trend to move from the use of government facilities to the use of private facilities is also noted as education level increases. Females who have completed secondary school also increased their health care demand. This indicates the importance of education, especially that of women as mentioned by Buor (2004). Not seeking care was attributed to a low severity of illness, especially when an individual has a high income. High income earners revealed there is a high opportunity cost in seeking health care. This is consistent with findings in other studies, where minor illnesses are managed through self care. Addressing supplier specific variables of distance and user fees, the study reveals that close proximity to a health care service is associated with an increase in demand for health care, therefore supporting similar findings in other studies. Gender effects of consultation fees were also observed, with women likely to decrease their

demand for health care of increase the likelihood of receiving no care; whilst none of these effects were found in men.

Other studies from developing countries mentioned below have focused on particular groups of individuals and provider types in the utilization of health care services. This is useful in noting individual behaviour, attitudes and beliefs under particular circumstances and towards particular health care providers.

### 2.4.7 Ethiopia

A quantitative study by Mekonnen & Mekonnen (2002) was conducted in Ethiopia to assess utilization of maternal health care services. The dependent variable was dichotomized into two categories signifying the use and the non-use of maternal health care services. A logistic regression analysis was performed. This study revealed that marital status influenced utilization, with married women more likely to use health care services. The influence of this variable was only mentioned in the Burkina-Faso study, whereby it was found to be insignificant, hence this study provided a contrasting view into the influence of marital status on health care service utilization. Concurrent with findings in the studies mentioned above so far, economic hardship, large family size and low socio-economic status acted as a barrier in utilizing maternal health care services in Ethiopia. Education also played a vital role, revealing that those with a higher level of education were more likely to use formal health care services, which is again in line with findings in the above mentioned studies. Cultural beliefs also played a significant role in the choice of provider, as shown by individuals with traditional beliefs opting to seek the use of traditional medicine. The use of formal health care services was employed on failure to acquire adequate treatment from the traditional option. As with the study in Pakistan, cultural beliefs require an understanding of the values of that society as this can affect the acceptability of certain health care providers.

### 2.4.8 Nigeria

A study carried out in Nigeria by Uzochukwu & Onwujekwe (2004), assessed health seeking behaviour amongst individuals with malaria by employing the use of a quantitative approach.

Descriptive statistical analyses were performed to assess use of various health care providers and the data for those who used the health centre was analysed using a logistic regression model. The dependent variable denoted the presence or the absence of a visit to a health centre. The majority of individuals sought care from government facilities, patent medicine dealers or traditional healers, and a few opted to use private facilities. This is in line with findings in Kenya, whereby patients with malaria preferred to employ the use of government facilities as medicines were available at lower costs than private facilities (Bradshaw & Mbatia, 2003). This study also revealed that poorer households are more likely to seek care with a traditional healer, patent medicine dealers and community health workers. Contrary to the earlier findings that financial barriers, such as user fees and perceived cost, discourage the utilization of health care services, findings in Nigeria showed that perceived cost did not affect utilization; instead, perceptions on quality and availability of drugs affected use. This is concurrent with the findings in Kenya, where this was attributed to individuals getting used to paying for health care services (Bradshaw & Mbatia, 2003). The study in Nigeria also revealed that older individuals and those with higher levels of education were also more likely to utilize health care services. The use of health care services was also encouraged by close proximity of health care services to an individual's home. Once again, the role of physical access to health care service is an important issue.



### 2.4.9 Zimbabwe

A quantitative study in Zimbabwe compared the use of traditional and orthodox healthcare services in two high density suburbs (i.e. Winston & Patel, 1995). In this study, there was no specific model used, but the factors focused on were socio-demographic variables, choice of provider and type of illness. The study employed statistical analysis and revealed that utilization is influenced by the type of health care provider available, with a majority of individuals opting to employ the use of orthodox health care providers rather than traditional healers (Winston & Patel, 1995). Traditional healers did play an important role in health care, whereby 11% of individuals consulted these providers based on certain perceptions of their illness (Winston & Patel, 1995). This is in line with findings in Pakistan where particular illnesses prompt an individual to seek the care of a traditional healer. It was also noted that older individuals preferred the use of traditional healers. The illness type was also an important characteristic, with individuals exuding physical symptoms rather than minor

ailments more likely to seek health care. This is in line with findings in Pakistan, where physical symptoms indicate an increase in the severity of illness, which prompt an individual to seek care. Non-use of health care services was attributed to a lack of money which is linked to low income, the perceived trivial nature of the problem or individuals opted for self care.

Another study in Zimbabwe by Hove et al. (1999) in Zimbabwe looked at the prevalence and associated factors for non-utilization of post-natal clinics. The study was quantitative in nature. A bivariate analysis and a logistic regression analysis were performed to explore and understand the factors influencing non-utilization. In the case of seeking care, it was observed that the majority of mothers made the decision, but in a smaller number of cases, the woman's husband was the sole decision maker. No payments were made by any mother at the post-natal clinics, therefore the cost of a service was not considered to be a barrier in use of post-natal care services in Zimbabwe. The two factors found to be associated with non-utilization of post-natal clinics were religion and the medical related factor – birth attendance. Focusing on the former, respondents belonging to the apostolic sect religion were more likely not to use this service as compared to other religions. This finding was not surprising, as this religious sect's beliefs do not allow one to use modern medicine. Instead, this religious group relies on prayer and faith healing. The author noted that attending a post-natal care service did not necessarily have to entail the provision of medicine; by not attending post-natal clinics, this group of mothers also lost out on valuable information on the child's health that is provided by such clinics. The second factor found to influence non-utilization was birth attendance. Mothers who had a non-medical birth were more likely to not utilize post-natal care services, as compared to those mothers who had been attended to by a health care professional. This highlighted the importance of education amongst women, so that they can be aware of the value of using post-natal care services.



### 2.4.10 Zambia

A study by Stekelenberg et al. (2005) in Zambia used Kroeger's Model (1983a) to assess utilization of traditional healers. Combinations of qualitative and quantitative methods were used. Utilization of traditional healers was influenced by perceived illness, with problems

such as infertility being considered as a traditional problem. This is in line with the studies in Pakistan and Zimbabwe where perception of an illness can prompt the use of a traditional provider. Older individuals and in particular, males were found to be more frequent users of traditional health care services than women. This can be attributed to older individuals facing more severe and frequent illnesses. Distance to facility played an important role in seeking care, as shown by a majority of individuals lived close to a traditional healer were likely to seek care from a traditional healer rather than a hospital as the time taken to reach the traditional healer was shorter (Stekelenberg et al., 2005).

In order to provide robust the information relating to health seeking behaviour and utilization of health care services, three studies from developed countries were also looked at, as shall be detailed overleaf.



### 2.4.11 United Kingdom (UK)

A study in the UK by Field & Briggs (2001) looked at the socio-economic and locational determinants of accessibility and utilization of primary health care services. The study was quantitative in nature and data analysis involved the calculation of frequency distribution tables, cross-tabulations and chi-squared tests. No particular model was used in the study although the author did provide a review of some of the models used to assess health seeking behaviour and utilization of health care services. The results obtained generally supported similar findings from previous studies, sighting age, gender, employment and social conditions, transport (access to a car), distance and time taken to reach a facility as important determinants of utilization of health care services. Age was found to influence access to health care services, with older individuals having problems. But in regard to frequency of consultations, there was found to be a decline with increasing age. Older individuals instead resorted to home based care. Younger age groups (0-15 years) used home visits more often than those of the older age groups. Gender disparities were also found to have a negative influence on utilization on the use of health care services. Females faced more constraints when seeking care than their male counter parts. The author attributed this to women being largely responsible for taking care of children and older relatives in the household; therefore they were not able to use health care services. This reasoning was similar to that in Ghana,

were women were found to be too busy with domestic duties to seek care. Employment status was found to influence utilization. Surprisingly, the unemployed used primary health care services and home visits more frequently than those who were employed. It was noted that students largely made up the unemployed category; therefore an increase in utilization was attributed to the fact that students had work commitments that the parents viewed as important. The employed revealed that their work commitment hindered their access to health care services, as seeking care involved a high opportunity cost.

Utilization of primary health care services was also associated with personal mobility, which encompassed car ownership, access to transport in addition to availability of alternative means of transport. Thus the availability of transport, whether owned or paid for, increased the frequency of utilization. A lack of access to adequate and affordable transport was viewed as an impeding factor in health care utilization, which is similar to findings in previously discussed studies. The distance and time taken to reach a facility were found to influence utilization. Distance had varying effects on utilization – as distance increased, but up to the 8km range, utilization rates declined, but at a distance of more than 8km, utilization rates increased. This finding was linked to transport availability. Therefore, those living close to a health care facility usually walked and had lower usage of a car, whereas those who lived at large distances from a health care facility had higher usage of a car. Residing at a large distance from a health care facility encouraged the use of home visits. Understanding the geographic setting allowed the author to convey why distance had this effect on utilization. Most surgeries were located in urban areas; therefore an increase in distance from a surgery corresponded to an increase in rurality – whereby rural dwellers were found to be more affluent and have better access to a car. The effect of time on utilization is similar to the effect of distance. The author noted increasing distance is a function of increasing journey cost and time, although this effect can be distorted by the socio-economic distribution of the population and surgeries.



### 2.4.12 Korea

A study by Yang et al. (2001) in Korea, explored the relationship between the economic crisis that occurred in 1997 and health care utilization. This study was deemed to be valuable

as it gave insight into how an economic crisis affects utilization, which is important in the Zimbabwean context. The author stipulates that health outcomes are negatively affected by an economic crisis, which creates a social burden and strains the health sector. The use of health care services declined due to a decrease in income, as brought about by the economic crisis. Individuals resorted to looking for cheaper alternatives of care. The magnitude of this effect was hampered after the first visit to a health care provider, when the decision of further utilization lay within the control of the health care provider. Health care providers in the study nonetheless did mention that the magnitude of a decrease in utilization was more significant at lower levels of care – i.e. at clinics and small hospitals; although there was little empirical evidence to support that in this study.

The use of health care services also shifted to lower levels of care as a result of a decrease in income. Therefore individuals moved from the use of tertiary care to primary care. There was a limited transition observed from the use to private care to public health care. Another shift observed was from the use of hospitals/ clinics to the increase in use of local pharmacies. Koreans also cut non-urgent health care use as the result of the economic crisis. Therefore many households decreased their use of health care goods (e.g. vitamins and dietary supplements) and health care services. In that, the effect of price of various services and goods in addition to a decrease in income act as impeding factors in the utilization of health care services. Socio-economic class was also noted to affect utilization. Lower income households used health care services much less and they reduced their drug expenditure more than the affluent households. This does raise a concern for equity. Employment status was another factor found to influence health care utilization. The unemployed decreased their use of health care services more than the employed. Furthermore, the unemployed cut their drug consumption by 40% after the economic crisis. This indicates that unemployed household members may face financial difficulties, thus leading to an increase in unmet need.



### 2.4.13 United States

Focusing on children, a study by Woods et al. (2003) in the United States assessed the determinants of use of health care services by children in rural areas. Univariate and multivariate regression analysis were used to understand the association between

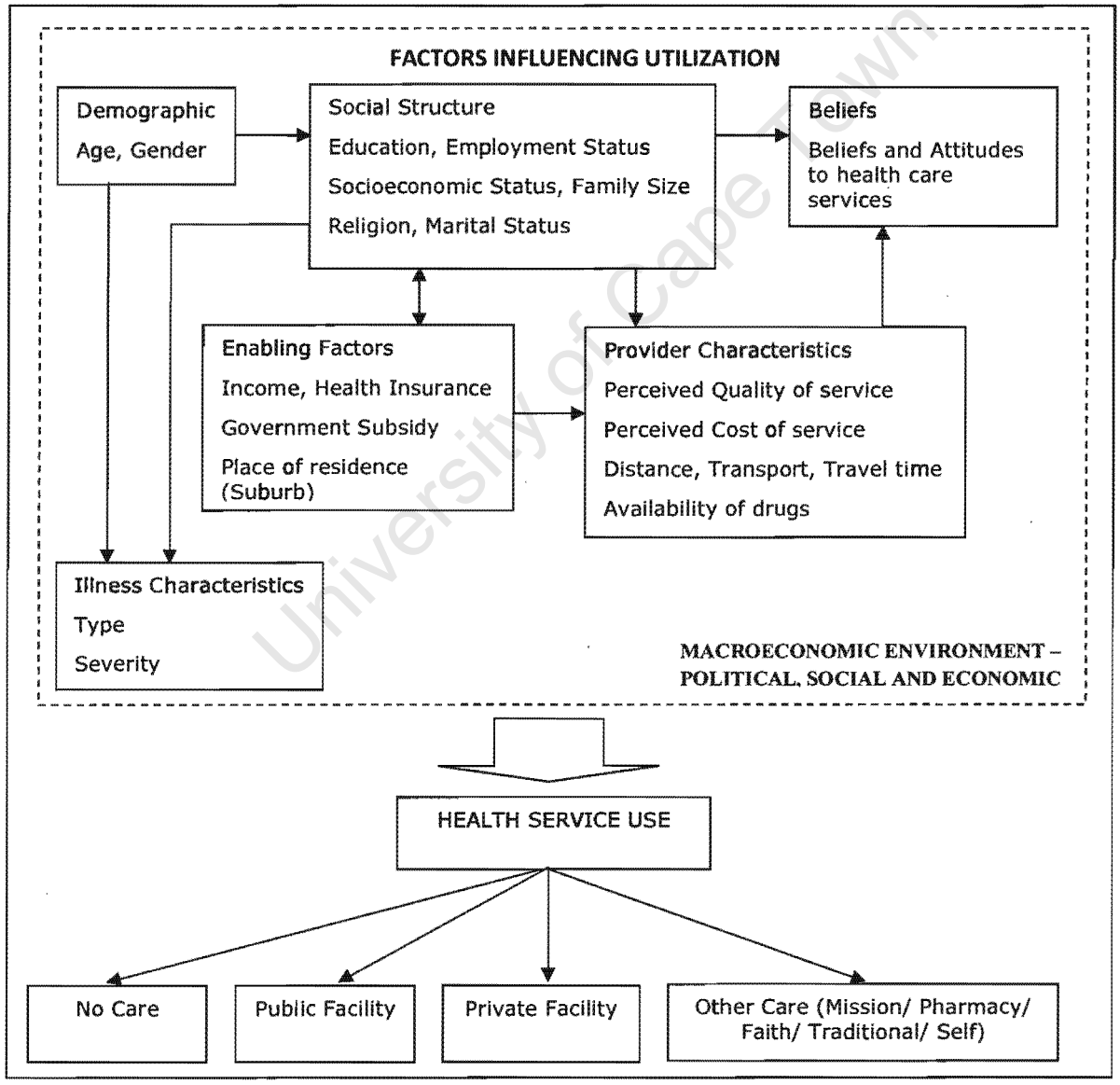
demographic and health variables with the number of health care visits. The children were split into two age groups - infancy to 4 years old and 5 to 17 years old. Starting with the younger age group, age, household income and health insurance were found to influence the number of visits to a health care facility. Age was negatively associated with the number of visits, implying that infants had more frequent visits as compared to their older counterparts. This finding was not surprising as generally infants and the elderly frequent health care services more due to their increased vulnerability of their immune system as compared to other ages that fall in between. Insurance coverage and a high household income positively influenced frequency of utilization; this was discussed shortly with the older age group. Looking at the second age group, use of health care services was associated with ethnicity, household income, health insurance and bodily pain and discomfort. Addressing the variable ethnicity, it was observed that white children had more frequent visits than black children. Children with insurance and from high income households showed a positive correlation with health care utilization. Bodily pain and discomfort was an indicator of illness severity. The author revealed that children suffering from mild pain had fewer visits as compared to those with those in severe pain.

These findings in the study were similar to findings in previous studies, although ethnicity, a variable previously not mentioned in other studies was noted. Common variables noted between the two age groups were health insurance and high household income. Health insurance has been widely recognized as an enabling factor in the use of health care services. The insured generally have better access to and ease of use of health care services. Looking at household income, the author attributed the positive association observed to two possibilities. Firstly, an increased use of health care services for minor illnesses by high income households and secondly the underutilization of health care services by low income groups. Undoubtedly, a high income opens up a variety of options in seeking care. A child's pain and discomfort was assessed by the parent. Inevitably, a concerned parent would take their child to a health care service in the event an illness is deemed severe. Racial differences were observed; the author attributed this to the possible differential access and use of health care services across the racial groups. Surprisingly, distance was found not to influence the use of health care services, hence geographical access to health care services was not an issue.

## CHAPTER THREE: CONCEPTUAL FRAMEWORK

A variety of factors that influence the utilization of health care services have been identified in the literature. These factors either enhance or impede utilization. A framework for assessing the various factors influencing the utilization of health care services is depicted below (Figure 3.1).

**Figure 3.1** Conceptual Framework




Depiction of variables influencing utilization based on literature review

This framework is based on the model developed by Kroeger (1983), but it has been modified to suit the country context and research framework. The key components of the framework are demographic factors, beliefs, social structure, enabling factors, provider characteristics and illness characteristics, with the utilization of health care services (health services use) at the centre. The framework was discussed by looking at all the components from left to right, starting with demographic factors.

**Demographic factors** - age and gender, have been shown to impact on utilization. What has been observed is that the age groups at the extremities – infants and the elderly – use health care services more than the age groups that fall in between. This is due to the differences in health care needs across age groups. Infants and the elderly are more predisposed to having particular illnesses. For example elderly individuals tend to be affected by a number of chronic illnesses. Gender differences have been profound in developing countries when seeking health care, which impacts on health services use. It has been noted that males have a higher propensity to seek care than females. However, theoretical literature suggests that females have higher health care needs given their physiology (Buor, 2004); therefore, they should have better access to and higher use of health care services. Both age and gender can influence the type of illness one can acquire.

**Beliefs** and attitudes to health care services particularly influence the type of health care provider sought. The manner in which individuals understand their disease can impact on the choice of provider, as shown by the study in Zambia whereby infertility was considered to be a problem dealt with by a traditional healer (Stekelenberg et al., 2005). Attitudes of health care providers are also important. A common trait observed across many countries is the belief that private facilities always offer better care than public facilities (Shaikh & Hatcher, 2004; Bradshaw & Mbatia, 2003; Lawson, 2004; Winston & Patel, 1995). This can result in preferential use of private facilities over public facilities or other types of health care providers. However, there may be some grounding as to where these attitudes and beliefs come from, as it may arise from past experiences at the health care facility, or the characteristics of the institution (e.g. as lack of availability of drugs, perceived poor service quality).

**Social structure** comprises of a variety of factors. Firstly, education of an individual and the household head, especially for females positively influences utilization. Furthermore, a trend towards the increase in use of formal or private care has also been observed with a rise in education levels (Mekonnen & Mekonnen, 2002; Lawson, 2004; Buor, 2004; Bradshaw & Mbatia, 2003). As one is more educated, there is a greater valuation of health and greater awareness of the opportunity cost of being in ill-health. Therefore the more educated tend to behave in a manner where they participate in health orientated activities that prevent illness, and cure illness, which include seeking health care. Employment status, occupation and education determine earning potential and work conditions, which collectively influence health. Occupation and employment status may influence health directly or influence how one perceives the need to seek care, respectively. Similarly as with the reasoning for education, the formally employed, such as professionals use health care services when in ill-health as there is a high opportunity costs when in that state. Education, employment status and occupation are related, with education determining the kind of occupation one has. Together, these variables also link to income level, which has a profound positive influence on utilization. Consistently, the literature has shown that low socioeconomic status and large family size have resulted in poor utilization. Religious beliefs have the ability to influence the type of health care provider sought. In the Zimbabwean context, it has been observed that members of the Apostolic Sect do not use modern health care services as it is against their religious beliefs (Hove et al., 1999); instead they are reliant on faith healers and prayer. The influence of marital status is uncertain, as one study depicts married women are more likely to use health care services (Mekonnen & Mekonnen, 2002), whilst another found no such effect (Develey et al., 1996). Socio-economic status has a profound influence on morbidity, as individuals of a low socio-economic status tend to be at higher risk of ill-health.

The **enabling factors** facilitate access to health care services. Income of the user is an important economic determinant. A high income provides financial empowerment, thus allowing flexibility in the use of a variety of health care service options. However, income is related to education level and occupation, as described earlier. Income can be viewed both as an enabling factor and a part of social structure; hence it can fall into more than one component. Any form of social support, be it health insurance or government subsidy, makes health care services more accessible and minimizes the effect of financial barriers to use

health care services, thus encouraging the utilization of health care services. Place of residence, by differing regions has the ability to influence utilization. Higher usage of health care services has been skewed to urban areas over rural areas, but since the study focuses only on urban areas; internal diversity of communities in the different regions may influence the use of health care services. Internal diversity in communities can exist when there are set religious beliefs, cultural beliefs or attitudes and beliefs towards health care services in a community. To explain this further, a community can have a predominantly negative view towards the use of health care services based on their religious/ cultural beliefs and having a lack of faith in the health care system.

The **provider characteristics** are important as they are associated with the location and functioning of the health care facility. These factors also influence the behaviour the individual as they impact on perceptions of cost and quality of service. Health care services perceived to be of low quality result in poor utilization. As with income, another important economic determinant is the cost of service to the user. These are crucial variables when it comes to the planning of health care services as they facilitate assessment of changes in health care demand as a result of changes in income or cost of health care services, which depends on income elasticity of demand or price elasticity of demand respectively (Hentschel, 1999). High costs of services are a financial barrier in the use of health care services. Perceptions on both quality of service and high cost impact on one's attitudes and beliefs towards health care services, and this negatively impacts on utilization. Perceptions on quality are related to education. As mentioned by Buor (2004) earlier, a minimum level of education is required in order to understand what quality care entails and where to access it. Looking at both perception on quality and cost, an individual inevitably feels less entitled to use a service if it is perceived to be of low quality, and the same applies if the cost is too high. Distance, transport, travel time and availability of drugs are important in seeking health care and in the assessment of health care service delivery. These factors are also crucial in health sector planning. Close proximity of a service, in addition to the availability of satisfactory transport to get to that service, positively influence utilization. Looking at the contrary, transport issues pose as a barrier to use health care services, and these can be exuded by poor roadwork or inability to acquire funds to use transport services. Travel times are associated with distance and transport mode. Close proximity services and the availability

of satisfactory transport positively influencing utilization. The availability of drugs is another important provider factor influencing utilization. A regular supply of drugs at a facility promotes the use of a health care service, and this is associated with the quality of services. This is particularly important in Zimbabwe, where stock levels of drugs at health care facilities have remained low, as revealed in a report by Tikiwa (2008) the stock levels of drugs ranged from 30% - 85%.

The characteristics of an individual's **illness** are another important component in this framework. Particular types of illnesses, such as respiratory problems (Develey et al., 1996) and physical injuries (Winston & Patel, 1995) have been shown to encourage the use of health care services more. Illness severity also has a bearing in whether care is sought or not. Severe episodes of illness prompt the use of health care services more, rather than minor ailments, whereby individuals end up opting for self care or other types of informal care.

The primary outcome in this framework is the utilization of health care services, **health service use**. Depending on various factors, as depicted in the framework, an individual may choose not to seek care. This can be the case when an illness is deemed minor. In the event that one does decide to seek care, there are various sources one can consult - namely a public facility, private facility or other types of care (mission facilities, pharmacies, drug sellers, faith and traditional healers). Valuable information can be obtained through the assessment of the use of various sources of care. Comparison of health care provider shares can be observed by viewing the role of the public sector versus these other choices of care. Furthermore, the various attributes of individuals that seek care at the various sources can be obtained.

All the factors depicted in the framework need to be explored within their **macroeconomic environment**, which is in regard to the political, economic, social and cultural environment. The macroeconomic environment has important implications for health outcomes. Genberg (1992) stipulates a poor macroeconomic environment changes the demands placed on the health sector and increases financial constraints on the supply of health care services. This is further supported by evidence from the study in Korea (Yang et al., 2001), whereby the economic crisis altered utilization patterns. Genberg (1992) illustrated that macroeconomic

shocks and adjustments affect three key areas adversely that are important for health outcomes. These are – household characteristics (income, education, fertility, health service use), the environment (sanitation, access to clean water, living conditions) and the supply and cost of health care services (government expenditure, cost of drugs, extent of user fees).

Other factors outside the realm of the community, such as trust of a local population in government and its activities are also important in health care delivery (Hentschel, 1999). Therefore country context of model applicability plays an important role. Of interest is how communities and individuals respond to the declining ability of the government's capacity to deliver health care now, given the historical context and current issues in the delivery of social services.

# CHAPTER FOUR: METHODOLOGY

## 4.1 Introduction

This chapter details the research methods employed in the study. The study design, study population and study instrument in addition to data processing, study limitations and ethical considerations are described in this chapter.

## 4.2 Study Design

Data was collected for the study through a cross-sectional household survey carried out by the researcher over the period of December 2007 – February 2008. PAHO (1999), states that the most direct approach to measure the use of health services comes from household surveys. Hentschel (1999) points out that household surveys provide information on the geographic utilization of health care services and they form the base of statistical tests that highlight the importance of health care costs, household income or the education of household members in explaining visits to health care facilities. Ross & Vaughan (1986) further support this, by stating that a single cross-sectional study has the ability to enhance health care services planning through the identification of illnesses that afflict individuals in addition to the identification of attitudes towards and level of use of various health care facilities. Given the type and amount of information that needed to be obtained, it was clear that conducting a household community survey was the most useful research design for this study



## 4.3 Study Sites

The household survey was carried out in three high density suburbs, in Harare West, which were Glen View, Kuwadzana and Dzivarasekwa. These are urban locations where the majority of the city's black population resides (Winston & Patel, 1995). Individuals who reside in these areas are affected the most by the economic situation; hence they were a very useful target group. Social policy reform based on the utilization determinants and current constraints or barriers these individuals face in seeking health care is useful and relevant to other high density suburbs in Harare. High density suburbs collectively make up a large

proportion of individuals living in urban areas. The study was restricted to urban areas for two reasons mainly; firstly this was due to constant shortages in fuel which made long distance travelling very difficult, furthermore the three study sites were relatively close to each other. Secondly, there was difficulty in safety assurance in areas outside the major city. This is a limitation of the study with regard to generalisability of the study results obtained. Nevertheless, the study remained relevant to the study population at hand and the vast number of high density areas of similar profile, where individuals have been severely affected by the economic situation.

## 4.4 Study Subjects

The head of household was considered to be the key informant, but if they were not available, a household member above the age of 18 years, was eligible to be the key informant. The key informant was responsible for responding for other household members. The definition of a household was based on that of the 2005-6 Zimbabwe Demographic and Health Survey (ZDHS), which stipulated that 'A household refers to a person or group of related and unrelated persons who live together in the same dwelling unit(s), who acknowledge one adult male or female as head of household, who share the same housekeeping arrangements, and who are considered one unit' (CSO, 2007a). The definition of a member also coincided with that of the 2005-6 ZDHS, which stipulated 'A member is any person who usually lives in the household' (CSO, 2007a). At the end of the survey, it was observed that household heads were the key informant in 42% of the cases, whilst the remaining 58% were other eligible respondents in the household.



## 4.5 Sample Size Calculation

Deaton (1997) has observed that a sampling fraction of 1:500 has been commonly used in a population of 5 million households (or 25 million individuals). The sampling fraction tends to be smaller when there is a larger population size (Deaton, 1997 p.10). Since this study is focused on three suburbs with a total recorded population size of approximately 104,604 individuals and a total of 15,160 households (CSO, 2007b), a larger sampling fraction was used. A sampling fraction of 1:35 was assumed. Based on this assumption, the sample size calculated was 15,160/35 = 433. Hence the sample size minimum considered for the study

was 433 households from the three areas collectively. Due to the possible population differences between the formulation of the household lists and the time of the study, a higher sample size estimation was used. This was also done so as to increase the precision and reliability of the study data; hence a sample size estimation of 500 households was used. Taking into account differences in population sizes across the suburbs, the sample size estimation was adjusted as displayed below (Table 4.1).

**Table 4.1 Sample Size Estimation**

| Suburb | % of Total Population[a] | No. of Households Estimated |
|---|---|---|
| Glen View | 38.46% | 192 |
| Kuwadzana | 38.59% | 193 |
| Dzivarasekwa | 22.94% | 115 |
| **Total** | **100%** | **500** |

[a] Source: CSO (2007b)

As indicated above, Glen View and Kuwadzana are of a similar population size, whilst Dzivarasekwa was found to be much smaller. Accounting for these differences, a sample size estimation of 192, 193 and 115 households was calculated for Glen View, Kuwadzana and Dzivarasekwa respectively.



## 4.6 Sampling Technique

A list of households in the above mentioned areas was obtained from the Central Statistics Office (CSO) in Harare. The households were selected using simple random sampling to participate in the study. This involved sequentially numbering the households in the area, and selection was based on computer generated random numbers using STATA9™. This sampling technique was useful in that it was easy to perform and it made the sample very representative as each household had the same probability of being selected, thereby minimizing selection bias. This technique was also useful in studying small populations where there is limited advance information known about the study population. Respondents in a selected household, who were not home, were replaced by the fourth household in the same location. Respondents, who declined to be in the study after being randomly selected, were recorded.

## 4.7 Survey Instrument

The study data was collected using a questionnaire (see Appendix A) administered through personal interviews in the respondent's home setting. The questionnaire was designed by the researcher and largely based on the literature review. The interview was structured; therefore all the respondents in the study were asked the same questions. The responses were recorded by an interviewer for predetermined (pre-coded), numeric open-ended and text open ended questions. The questionnaire was organised in a specific manner, with similar types of questions grouped together. The questionnaire probed into the respondent's demographics, socio-economic status, health status in addition to the experiences in the use of health care services or health care providers, along with the attitudes and beliefs towards these respectively.

Demographic information, age and gender were recorded for each member in a household. Multiple measures were used to obtain information regarding socio-economic status. Socio-economic status has been typically measured using income, expenditure, education, occupation and wealth (housing materials, characteristics of the dwelling, asset ownership and number of animals) (Braveman, 2003; Duncan et al., 2002). In the context of developing countries, living standards can be ascertained by measuring asset ownership, animal ownership, infrastructure and housing conditions (source of water, energy and sanitation facilities) (Vyas & Kumaranayake, 2006). These variables are collectively reflective of one's socio-economic status. In this study, socio-economic status was measured by ascertaining housing conditions, asset ownership and animal ownership. Socioeconomic status denotes an individual's position in the social hierarchy, as based on these variables. The importance of socio-economic status on health outcomes has been observed (Duncan, 2002) and literature has shown that it has a strong influence on health care utilization. A measure for socio-economic status was generated using a technique called Principal Components Analysis (PCA), which is discussed further on.

Information pertaining to health status was collected by ascertaining if an individual had experienced a health problem or illness in the 4 weeks (one month) preceding the interviews. The recall period used for illness was one month so as to minimize recall bias. Ross &

Vaughan (1986) stipulate that the recall period has to be long enough for the detection of a reasonable number of illnesses and short enough to minimize recall errors. Kroeger (1983b) reported that minor complaints can be under-reported if a recall period of less than two weeks is used and a period of 12 months is not sufficiently reliable. A period of two to four weeks has been recommended by Ross & Vaughan (1986). Hence the study employed a recall period of 4 weeks in recording illness and the use of health care services. Furthermore, information surrounding an individual's experience and attitudes regarding the use or non-use of health care services was probed into. The questionnaire also asked respondents their views with regard to their use of health care services before the economic crisis ensued (in 2002), and finally a hypothetical scenario questioning where individuals would want to seek care in the event of an illness.

A pilot study was performed and subsequently amendments were made. These amendments included questions regarding income and expenditure in addition to the illness categories. Before the pilot study, information relating to income and occupation were asked after education and household size. Many respondents were reluctant to answer the questions. Furthermore, information pertaining to expenditure was asked a few questions after the income questions, hence individuals attempted to state their expenditure in relation to their income, which may not have been a true reflection of their expenditure. Therefore to manage this, after the pilot study, questions regarding income were asked towards the end of the questionnaire, where individuals were more comfortable with the interviewer and the interview process. This made individuals more responsive, and they provided information regarding expenditure without connecting it to their income. Furthermore, this allowed for respondents to answer the less sensitive questions first (demographics and expenditure) and the more sensitive ones (health status and income) later on in the questionnaire.

Another problem faced during the pilot study was determining adequate income ranges. Due to the hyperinflationary environment, these had to be revised multiple times before going into the field. During the pilot study, it was noted that one disease category, pneumonia had been left out in the illness categories due to an oversight, hence it was added afterwards. The questionnaire contained 58 questions in total and it was approximately 14 pages in length.

The pilot study revealed that the questionnaire on average took no longer than 40 minutes to administer. Therefore the questionnaire was not too long and that allowed for respondents to focus for the duration of the interview. No part of the questionnaire was retained by the respondent and the interviewers. Instead, all the information was handed over to the principal investigator for manual checking and data entry. Further details on the pilot study are mentioned under the quality control section.

## 4.8 Data Collection Methods and Measurement

The questionnaire was administered in either one of the respondents' preferred language, that is English or Shona (local language) by the researcher, with the assistance of five trained research assistants. Ross & Vaughan (1986) comment that the use of local interviewers who are experienced in research in these areas aids in minimizing distrust, misunderstandings and it facilitates acceptance into the community to perform the study. Personal interviewing was the only viable technique in the study areas whereby telephone lines were limited and personal contact with respondents was essential so as to encourage participation in the study. The use of research assistants was helpful in this study whereby direct contact was important. This method of data collection also allowed for respondents that were not literate to participate. Furthermore, the Research Methods Knowledge Base (2006) observed that the quality of information provided in the responses can be judged by the interviewer and high response rates have been noted in personal interviews. During the fieldwork, it was observed that some respondents, when it came to disclosing their assets, specifically animal ownership, they may have provided answers that were a reflection of what they wanted to own or answers that reflected well on them. This was a form of response bias, which was discussed in the study limitations further on.



## 4.9 Quality Control

In order to ensure quality control, a few measures were taken within the study. Quality control at various stages (questionnaire formulation, research assistants and questionnaire completion) of the study was employed, as discussed below.

### 4.9.1 Questionnaire Formulation

- Morbidity categories were defined according to previous groupings in the Zimbabwe Demographic and Health Survey (ZDHS), and specified recall period was used so as to minimize recall bias.
- The questionnaire was piloted through purposive sampling on six households that were of similar profile as those in the study so as to highlight any problems in understanding. The necessary corrections were made after the pilot study as previously mentioned.

### 4.9.2 Research Assistants

- The use of experienced research assistants who were fluent in both English and Shona (local language) aided in the collection of information from respondents who spoke one language or the other.
- The research assistants received two days training so as to brief them on the study content, interview techniques, ethical considerations and data collection. This was a very important aspect of the study, as the quality of the data collected was dependant on how well the interview and questionnaire filling in were conducted. The training detailed the description of the study, the importance of the study, how to conduct survey research. The importance of interviewer bias was highlighted. The research assistants practiced interviewing several times in the presence of the researcher, which allowed them to gain familiarity with the questionnaire. The interviewers were equipped ancillary instruments - maps of the study areas, sufficient copies of the questionnaire and cover letters from the ethical committees approving the research.
- Regular supervision and discussion on the data collection progress of research assistants was also performed by the researcher. This allowed for discussion of constraints and concerns in the research.

### 4.9.3 Completed Questionnaires

- Consistency checks were performed on each day's completed questionnaires, so as to check for errors, omissions or corrections that may need to be made. This also allowed for rapid feedback to be given to research assistants.

- Validation of the questionnaire was done indirectly by comparing the easily identifiable reported diseases with the 'real' prevalence of that disease. This therefore highlighted the probability of occurrence.

## 4.10 Data Management and Analysis

The study questionnaire had two approaches, firstly, a quantitative approach was used, which allowed for the generation of numerical results thus enabling one to see patterns and determinants of utilization. Secondly, a qualitative approach was used towards the end of the questionnaire to investigate complex and sensitive issues such as beliefs and attitudes towards the health care service delivery. This information could not be captured solely using a quantitative approach. To differentiate between the two approaches, the Research Methods Knowledge Base (2006) mentioned that quantitative approaches allow for the generation of data based on statistical projection and the qualitative approach provides the respondents' point of view, thereby providing rich detail that places the quantitative results in their human context. This was further supported by Hentschel (1999), who stipulated that qualitative methods allow for the study of issues in greater depth and detail, in addition to provide a contextual understanding of behaviour employed by a particular group. Therefore it was valuable to mix a large quantitative approach with a smaller qualitative approach in this survey. Looking at the needs and requirements of the study, combining the two allowed for a better understanding of human behaviour and attitudes in the utilization of health care services.



On completion of the survey, the collected data was entered using EpiInfo™ software by the researcher. Any errors were checked for and subsequently corrected. The data was transferred and analysed using STATA10™ (StataCorp LP) software. Qualitative data from Questions 55, 57-58 (see Appendix A) were analysed at the end of the study and grouped into general themes. Missing data was excluded from the analysis of results. A correlation matrix (Appendix B.2) was developed to see if any of the variables were highly correlated, but none of the variables were highly correlated to warrant exclusion from the analyses. Four types of analyses were performed; firstly Principal Components Analysis (PCA) was performed so as to generate an indicator of socio-economic status. Secondly, descriptive statistical analysis

was also performed so as to develop an understanding of the study population in regard to their demographics, socio-economic and health care seeking behaviour. Thirdly, a quantitative analysis was done using a binary choice model and a multinomial logit regression model. The binary choice model was used to analyse the factors that influence the use and non-use of health care services; the multinomial regression model was used to analyse the determinants of use of the various health care providers. Finally, a qualitative analysis was performed to present the respondents' views in regard to health care service delivery.

### 4.10.1 Principal Components Analysis

Principal components analysis (PCA) is a technique that was used to generate the socio-economic status indicator. This is a multivariate statistical technique used to reduce a large number of independent variables into a smaller set of variables that represents the same information from the original set of variables (Dunteman, 1989, p7; Vyas & Kumaranayake, 2006). In essence, PCA aims to explain the total variance in the original set of variables included in the analysis (Okorafor, 2008). The socio-economic status indicator was generated using variables relating to housing conditions (roof material, water source, main source of fuel for cooking, sharing a flush toilet with another household), household assets (cellphone, fridge, car, motorcycle and bicycle) and animal ownership (chickens, goats and cows). Two of the variables relating to housing material (type of house and wall material), were excluded from the analysis. The assessment of the data revealed that individuals may have had difficulties in deciding what type of housing structure they resided in and what type of material was used for their walls. Looking at household assets, variables depicting ownership of a radio and television were excluded as the majority of individuals (90.04% and 92.88% respectively) had these assets, which therefore results in little variation within the variables. Okorafor (2008), states that variables with extremely low levels of variation can be excluded from the PCA, as they limit the variable's ability to adequately reflect variations in the socio-economic status indicator. Another household asset excluded from the analysis was telephone lines, as it was not considered to be an important contextual variable that contributes to socio-economic status. This was due to the general inefficiency in the supply of telephone lines in the country; instead cell-phone ownership was used in the generation of the socio-economic status indicator.

Focusing on animal ownership, three groups – sheep, pigs and horses, were excluded from the analysis as they were not considered to be as important contextual variables that influence socio-economic status given the study population. Furthermore, these variables also had low levels of variation. The remaining groups of animals (chickens, goats and cows) were included in the analysis as they were considered to be the three most important groups that contribute to socioeconomic status. The described variables were therefore used to generate an indicator for socio-economic status. The following formula[6] was used to generate the socio-economic status indicator:

$$\text{Index\_SES} = 0.062 \times \left( \frac{\text{water} - \overline{\text{water}}}{\text{Swater}} \right) + \ldots\ldots + 0.2283 \times \left( \frac{\text{ns\_toilet} - \overline{\text{ns\_toilet}}}{\text{Sns\_toilet}} \right)$$

PCA therefore allowed the creation of components, whereby each component is a linear weighted combination of the initial variables. The weights for each component are given by the eigenvalues (Vyas & Kumaranayake, 2006). The first component generally accounts for the largest possible variation in the original set of variables, and the subsequent components explain a smaller proportion of the variation of the original dataset. The full results for the PCA are presented in Appendix B.3. And these are further discussed in the results chapter.



### 4.10.2 Binary Choice Model

In the assessment of health care utilization, one of the key areas of interest is the decision of whether one seeks care or not in the event of an illness. In this model, the responses were coded as '1' if an individual seeks care and '0' if an individual does not seek care. The outcome (dependent variable), in this case, is measured as a binary variable; i.e. takes on values of one or zero, denoting in this case denoting the presence or the absence of a visit to a health care provider. A variety of factors (independent variables) have been identified in the literature that are relevant in explaining whether one seeks care or not, which includes

[6] Note: the numbers before the brackets represent the scoring coefficient for each respective variable. The information in the brackets pertains to the standard deviation for each variable from the overall mean of that same variable (Source: Okorafor, 2008)

variables such as age, gender, marital status etc. The description and coding of these variables is contained in the Appendix (Appendix B). If the binary outcome, y, depends on a set of explanatory variables, x, then the expected value of y given the characteristics x can be expressed as:-

$$E(y|x) = P(y=1|x) = F(x)$$

This model is depicted below (Model a):

$$y_i = \beta_1 + \beta_2 x_{2i} + \beta_3 x_{3i} + ... + \beta_k x_{ki} + u_i \qquad \textbf{Model (a)}$$

$y_i$ – dependant variable – Seek care (0= No, 1= Yes)
$\beta_1$ – intercept
$\beta_2$ to $\beta_k$ – partial slope coefficients
$x_{2i}$ to $x_{ki}$– independent/ explanatory variables (age, gender, marital status, education, household size, socioeconomic status, illness type, illness severity, religion, employment status)
*i* – *i*th observation (1,2,3..n) ; n – population size
$u_i$ – error term

Three approaches can be used in binary choice models – linear probability model, logit model and a probit model. The **logit model** was chosen for the regression analysis as the dependent variable is binary in nature. In the logit model, the decision to seek care is determined by a continuous latent variable, y*. This latent variable, y*, is directly unobservable, and it denotes an individual's propensity to seek care. The latent variable y* is modelled by a linear function of the individual's characteristics, x, as shown in model (a). The error term in this model has a standard logistic distribution. The probability function for the logit model has an 'S' curve with a regression function that lies within the range of zero and one, regardless of the values of x. This is what differentiates the logit and probit models from the linear probability model, which is inappropriate for the binary response dependent variables. The linear probability model uses a straight line, hence the drawback is that the regression function does can lie outside the range of zero and one, thereby leading to an inconsistency of the model. Furthermore, the variance of the error term depends on the values of x, thus it is heteroscedastic (Jones, 2006).

The logit model is estimated by the method of maximum likelihood estimation. Since the latent variable y* denotes propensity to seek care, the larger the latent variable, y*, the

greater the likelihood of one seeking care. The β coefficients for the logit model are interpreted in terms of log-odds ratios of a success; success being y = 1. Hence, a positive value for a coefficient indicates that one is likely to seek care and the observed binary outcome will be equal to one. But if the individual is likely not to seek care, the coefficient has a negative value, and the observed binary outcome will be equal to zero.

### 4.10.3 Multinomial Logit Model

The multinomial regression models are useful in the assessment of the factors that influence the choice of health care sought. The **multinomial logit model** applies to discrete dependant variables that have more than two categorical responses and these categories are nominal (i.e. unordered). This is in line with the dependant variable in this study, whereby different choices of care are considered. The choice of care depends on various factors (explanatory variables) e.g. age, gender, education etc, that were observed in the literature. The multinomial regression model is depicted below (Model b):

$$y_i = \beta_1 + \beta_2 x_{2i} + \beta_3 x_{3i} + \ldots + \beta_k x_{ki} + u_i \qquad \textbf{Model (b)}$$

$y_i$ – dependant variable – Choice of care (0= Public Facility, 1= Private Facility, 2= Other care, 3=No care)
$\beta_1$ – intercept
$\beta_2$ to $\beta_k$ – partial slope coefficients
$x_{2i}$ to $x_{ki}$– independent/ explanatory variables (age, gender, marital status, education, household size, socioeconomic status, illness type, illness severity, religion, employment status)
*i* – *i*th observation (1,2,3..n) ; n – population size
$u_i$ – error term

The multinomial logit model is an extension of the binary choice model – the logit model. The multinomial logit model measures the probability of an individual, i, choosing a particular type of care, j, as indicated below:

$$P_{ij} = \exp(x_i\beta_j)/\Sigma_k \exp(x_i\beta_j)$$

The coefficients on the explanatory variables, represented by $\beta_j$, vary across individuals ($x_i$) and they also vary across the various types of care, j. In the multinomial logit model, the βs for one of the outcomes needs to be set at zero, as it is not possible to identify separate βs for all the types of care. This normalisation means that the predicted probabilities are viewed

with respect to a base-line category. In this model, care at a public facility was treated as the base-line category; therefore the relative probability of seeking care at a private facility, other care or no care is viewed with respect to seeking care at a public facility. This specification is restrictive and it implies the 'independence of irrelevant alternatives' (IIA) property. In order to satisfy the IIA property, the relative predicted probability needs to remain constant across the given choices of care. The IIA property can be tested using the Hausman test to check whether there is a significant difference in the estimated coefficients when one of the types of care is dropped. The test is used when there are three or more alternative outcomes. It involves dropping one of the outcomes and comparing the results obtained in this test and the results from when all of the outcomes were considered. In the multinomial logit model, the β coefficients are interpreted in terms changes of log-odds ratio. The sign of the coefficient denotes if an independent variable has a positive effect (encourages use) or a negative effect (discourages use) of a particular type of care as compared to use of a public facility.



### 4.10.4 Model Specification

The two regression models were specified below, including expected coefficient signs (Table 4.2 – Table 4.5). Firstly the binary choice model was presented, then the multinomial logit model. Note that the multinomial regression is run once but the results are presented in three parts - for private care, other care and no care, with public care being the base/ comparison group. A full description of the study variables is presented in Appendix B.1.

**Table 4.2 Model Specification: Binary Choice Model (Logit)**

| Variables | | Expected Coefficient Signs | | Expected Coefficient Signs |
|---|---|---|---|---|
| **Dependent Variable** | Seek Care (0=No, 1=Yes) | | | |
| **Independent Variables** | Age | + | Socioeconomic status | + |
| | Gender (1=female) | - | Illness severity | + |
| | Gender Household Head (1= female) | - | Religion (Apostolic Sect) | - |
| | Marital status Household Head (1=Married) | + | Employment status Household Head (base category - formally employed) | - |
| | Education level Household Head | + | | |
| | Household size | - | | |

**Table 4.3 Model Specification: Multinomial Logit Model Private vs. Public**

| Variables | | Expected Coefficient Signs | | Expected Coefficient Signs |
|---|---|---|---|---|
| **Dependent Variable** | Choice of care (0= Public Facility, 1= Private Facility, 2= Other care, 3=No care) | | | |
| **Independent Variables** | Age | + | Socioeconomic status | + |
| | Gender (1=female) | - | Illness severity | + |
| | Gender Household Head (1= female) | - | Religion (Apostolic Sect) | - |
| | Marital status Household Head (1=Married) | + | Employment status Household Head (base category - formally employed) | - |
| | Education level Household Head | + | | |
| | Household size | - | | |

**Table 4.4 Model Specification: Multinomial Logit Model Other Care vs. Public**

| Variables | | Expected Coefficient Signs | | Expected Coefficient Signs |
|---|---|---|---|---|
| **Dependent Variable** | Choice of care (0= Public Facility, 1= Private Facility, 2= Other care, 3=No care) | | | |
| **Independent Variables** | Age | + | Socioeconomic status | + |
| | Gender (1=female) | - | Illness severity | - |
| | Gender Household Head (1= female) | - | Religion (Apostolic Sect) | -/+ |
| | Marital status Household Head (1=Married) | -/+ | Employment status Household Head (base category - formally employed) | -/+ |
| | Education level Household Head | -/+ | | |
| | Household size | + | | |

**Table 4.5 Model Specification: Multinomial Logit Model No Care vs. Public**

| Variables | | Expected Coefficient Signs | | Expected Coefficient Signs |
|---|---|---|---|---|
| **Dependent Variable** | Choice of care (0= Public Facility, 1= Private Facility, 2= Other care, 3=No care) | | | |
| **Independent Variables** | Age | - | Socioeconomic status | - |
| | Gender (1=female) | + | Illness severity | - |
| | Gender Household Head (1= female) | + | Religion (Apostolic Sect) | + |
| | Marital status Household Head (1=Married) | - | Employment status Household Head (base category - formally employed) | - |
| | Education level Household Head | - | | |
| | Household size | + | | |

## 4.11 Study Limitations

Considering the nature of the study design, there are a variety of possible biases and study limitations faced.

- Selection bias – this could have occurred through the selection of a sample that is not entirely representative of the population.
- Non-response bias – this may have occurred when respondents failed to answer a question or could not be reached. Those who declined to participate may have had some different characteristics to those who did agree to participate, which introduces non-response bias. In this study a total of 31 households declined to participate in this study. Nonetheless, the response rate was still high.
- Interviewer bias – Personal interviews are associated with a high degree of interviewer bias. This may arise from interviewers having intentionally or unintentionally swayed the responses of those who were interviewed.
- Response bias – The survey was dependant on asking questions and obtaining self reports from respondents. Those who participated in the study may not have answered truthfully due to not wanting the truth known, the questions being too personal or for other reasons. It can also be the need to provide answers that respondents feel reflect well on them. The most sensitive questions were those relating to expenditure and income.
- Recall bias – Given the recall period of 6 years to evaluate the use of health care services in 2002, this introduces recall bias.
- A study limitation faced, and only realised after the survey, was that medical insurance and government subsidy information was only obtained for those who sought care when they fell sick. This would have been important information to ascertain for those who did not seek care, as a lack of health insurance may have posed as a barrier to use health care services.

## 4.12 Ethical Considerations

Ethical approval was obtained from both the Research Ethics Committee at the University of Cape Town and the Medical Research Council of Zimbabwe (MRCZ) (see Appendix C).

Investigators disclosed to the individuals eligible for the study relevant information about the study such as the purpose of the study, benefits and social implications. Understanding of relevant knowledge disclosed was checked by investigators, and upon which a written consent form was signed by the individuals who were willing to participate. The respondent was free to choose to not answer a particular question or end the interview at any time. The respondents were informed in the consent form that their withdrawal did not result in dire consequences for them. The information collected from the households, was solely be used for research purposes only. Due to the nature of the study, the respondents' first names needed to be collected, but this information was kept confidential so as to protect the study participants. The study refrained from collecting written information regarding the participants' identification number. During the presentation of results, no direct inference shall be made to any individual by name.

There were no potential risks to the study subjects. Information pertaining to respondents and their families was and shall be kept confidential as indicated above, to ensure their protection. The study is beneficial to the study subjects as they have an opportunity to convey information about their health seeking behavior patterns. This can aid in the identification potential barriers they face when trying to use health care services in Zimbabwe. By understanding individual behavior and responsiveness to the health care system, it can lead to adequate planning and management of health care services and aid in formulation of social policies that are relevant to the study population. This is a benefit that may accrue to society as a whole and thus be directly beneficial to the study participants.

# CHAPTER FIVE: RESULTS

## 5.1 Introduction

In this chapter, the results of the household survey are presented. Firstly, the descriptive statistical analysis results are presented in order to provide an understanding of the study population. The second component of this chapter presents the regression analysis results for both the binary choice model and the multinomial logit model. The third component of the results looks at health care seeking behaviour and utilization in 2002. The final component of the chapter presents the qualitative analysis results.



## 5.2 Descriptive Statistics

A total of 527 households (2302 individuals) were surveyed, and 31 households declined to be in the study, thereby giving the response rate of 94.4%. The survey sites and the number of respondents are depicted below (Table 5.1):

**Table 5.1 Number of respondents by survey site**

| Study Site | Households (n) | Individuals (n) | % of Total population surveyed |
|---|---|---|---|
| Glen View | 197 | 865 | 37.58% |
| Dzivarasekwa | 122 | 542 | 23.54% |
| Kuwadzana | 208 | 895 | 38.88% |
| **Total** | **527** | **2302** | **100.00%** |

These figures for the number of respondents coincided with the sample size calculation estimates. A total of 865 respondents were from Glen View, 542 from Dzivarasekwa and 895 were from Kuwadzana

### 5.2.1 Socio-demographic profile

The socio-demographic characteristics of the individuals are provided below, according to the three suburbs and in comparison to the results from the Zimbabwe Demographic and Health Survey (ZDHS) (Table 5.2). The majority (~77%) of individuals in the study were under the age of 34. This finding was similar to that of the ZDHS, where approximately 78%

of the urban population was observed to be under the age of 34. The proportion of individuals under the age of 14 across the three suburbs was much lower than the ZDHS finding of 35.00%. The proportion of individuals falling into both the 15-24 and 25-34 age groups was much higher across the three suburbs than the ZDHS finding of 25.50% and 17.70% respectively. The older age groups (over 35) in the household survey made up a smaller proportion of individuals in the study and these were found to be similar to the results of the ZDHS. Focusing on the study data, the groups did not differ substantially across the three areas. In all three study areas, there were more males (~55%) than females (~45%). This contrasted with the findings from the ZDHS, whereby males comprised 48% of the population, and the remainder was the female population. Approximately half of the study population over the age of 15 was not married across the three suburbs. These findings were in line with findings from the ZDHS.

**Table 5.2 Socio-demographic profile of individuals across the study areas**

| | Glen View (%) | Dzivarasekwa (%) | Kuwadzana (%) | ZDHS (2005-6)[a] (%) |
|---|---|---|---|---|
| Age Group (in years) | | | | |
| 0-14 | 23.17 | 26.40 | 24.97 | 35.00 |
| 15-24 | 32.93 | 30.90 | 30.48 | 25.50 |
| 25-34 | 21.34 | 20.22 | 22.95 | 17.70 |
| 35-44 | 10.00 | 12.17 | 7.65 | 10.30 |
| 45-59 | 10.73 | 6.18 | 11.25 | 7.80 |
| 60+ | 1.83 | 4.12 | 2.70 | 3.60 |
| Gender | | | | |
| Males | 54.39 | 55.56 | 54.53 | 48.00 |
| Females | 45.61 | 44.44 | 45.47 | 52.00 |
| Marital Status (over 15 years) | | | | |
| Not married | 51.59 | 47.08 | 48.80 | 49.50 |
| Married | 48.41 | 52.92 | 51.12 | 50.50 |
| Household size | | | | |
| ≤3 | 17.57 | 18.08 | 17.88 | 42.70 |
| 4-5 | 47.86 | 57.93 | 50.28 | 34.40 |
| ≥6 | 34.57 | 23.99 | 31.84 | 23.00 |
| (Mean size) | (4.39) | (4.44) | (4.30) | (4.10) |

| | | | | |
|---|---|---|---|---|
| Education Level (over 6 years) | | | | |
| No formal | 4.19 | 5.88 | 3.02 | 4.55 |
| Primary | 15.00 | 16.29 | 19.02 | 31.30 |
| Secondary | 65.81 | 73.53 | 70.40 | 57.45 |
| Tertiary | 15.00 | 4.30 | 7.56 | 6.15 |
| Employment Status [b] (over 15 years) | | | | |
| Employed | 53.85 | 34.39 | 39.32 | 52.70 |
| Unemployed | 46.15 | 65.61 | 60.68 | 47.30 |
| Occupation [c] | | | | |
| Professional/ Managerial | 14.90 (39.59) | 8.23 (33.01) | 6.27 (23.08) | 7.30 |
| Clerical/Sales | 6.45 (17.14) | 7.26 (29.13) | 9.34 (34.39) | 35.00 |
| Manual/ Agriculture | 16.28 (43.27) | 9.44 (37.86) | 11.55 (42.53) | 57.70 |
| Informal Trader | 27.50 | 38.26 | 31.20 | n/a |
| Student | 33.49 | 30.51 | 31.45 | n/a |
| None | 1.38 | 6.30 | 10.20 | n/a |
| Socio-economic Status (Wealth Quintiles) | | | | |
| 1st (Lowest) | 20.60 | 19.43 | 20.23 | n/a |
| 2nd | 20.42 | 25.51 | 17.50 | n/a |
| 3rd (Middle) | 23.06 | 25.51 | 25.91 | n/a |
| 4th | 11.80 | 11.13 | 18.86 | n/a |
| 5th (Highest) | 24.12 | 18.42 | 17.50 | n/a |

[a] Source CSO (2007b) [b] Students were not considered to be unemployed or employed [c] Results in brackets comparable to the findings of the ZDHS n/a – not applicable



Household size across the three areas ranged from 1 to 10 members. Across the three suburbs it was noted that the proportion of large sized households was much higher than the ZDHS estimates, which can be attributed to the fact that high density areas were focused on in this study. The majority of households fell into the group with 4-5 members. The average household size did not differ between the three suburbs – 4.39 for Glen View, 4.44 for Dzivarasekwa 4.30 for Kuwadzana. These figures were all higher than the ZDHS finding where the average household size was 4.10 for urban areas. Education levels were generally high across the three suburbs looking at the individuals of school going age, with only less than 4.4% on average not having any formal schooling. This finding was comparable to the ZDHS finding of 4.55%. The remainder of the study population received some level formal schooling, with a majority of respondents having attained a secondary level education. Glen

View the highest proportion of individuals who have attained a tertiary level education. The education levels observed were generally much higher than the ZDHS findings.

Unemployment was generally high across the three suburbs. Dzivarasekwa (65.61%) and Kuwadzana (60.68%) had a higher proportion of unemployed individuals as compared to Glen View (46.15%). Of the three suburbs, only Glen View had an unemployment level comparable to the ZDHS finding of 47.30%. Focusing on occupation, the majority of individuals in the survey were found to be informal traders, students or manual/ agricultural workers. Dzivarasekwa and Kuwadzana had a larger proportion of informal traders as compared to Glen View, which contributes to the high unemployment levels observed. Glen View had the highest proportion of formally employed individuals in two sectors – professionals/managerial (14.90%) and manual/agriculture (16.28%) as compared to the other two suburbs. Comparing these findings to the ZDHS, it was found that the proportion of individuals in professional/managerial was much higher than the ZDHS finding of 7.30%. Furthermore the proportion of individuals in both clerical/sales and manual/agriculture work were found to be lower than the ZDHS findings.

A wealth quintile, signifying socio-economic status was generated, as discussed further on. The quintiles were organized from lowest to highest, signifying the increase in social status from poor to rich respectively. Dzivarasekwa had the highest proportion (~45%) of individuals falling into the 1st and 2nd quintiles, thereby highlighting that Dzivarasekwa had the highest proportion of poor individuals as compared to the other two suburbs. Glen View also had a similar proportion of individuals falling into these quintiles (~41%). Most of the individuals across the three suburbs were concentrated in the middle quintile. Kuwadzana had the largest proportion of individuals falling into the 4th quintile as compared to the other two suburbs. Glen View had the highest proportion of individuals falling into the 5th quintile. Nonetheless across the three suburbs, there were a similar proportion of individuals in the upper quintiles collectively.

### (i) Principal Components Analysis (PCA) Results

The generation of a wealth quintile was performed using principal components analysis using 17 variables depicting housing conditions, household assets and animal ownership as mentioned in the previous chapter. The level of analysis was at the household level. Information regarding income and expenditure was excluded from the analysis, as these could not be accurately determined, nonetheless, the socio-economic quintiles could still be generated based on experience from previous studies (Filmer & Pritchett, 1994; Vyas & Kumaranayake, 2006). Fewer components are defined as compared to the number of variables, as the PCA technique involves reducing the number of variables, hence there would be no advantage in retaining all of the principal components (Dunteman, 1989, p10). The full results are presented in Appendix B.3. The PCA results showed that a total of 1942 observations were used in the analysis. The proportion of total variance of the 17 variables is explained by each component. The first component had the largest eigenvalue and accounted for the largest variation in the original set of variables (25.01%).

Only components with a minimum eigenvalue of 1 were retained. The total variance explained by the retained six components = 0.6745, which is the same value as Rho. The eigenvectors of the retained components are displayed in the second part of the PCA results. The second component was chosen to create the indicator for socio-economic status as the component loadings were more in line with the contextual expectations as compared to the other components. The component loadings for the second component were all positive except for the variables depicting ownership of animals below the mean. A positive component loading indicates a positive relationship with socio-economic status. The results also reveal the extent of association a variable has with socio-economic status, therefore a variable that has a positive component loading increases the value of the indicator for socio-economic status according to its extent of association with socio-economic status. The last column depicts the proportion of variation in each result that was not explained by the first component. The indicator for socio-economic status was subsequently generated and its distribution is displayed in Appendix B.4. The indicator is distributed over a wide range, although the majority of individuals were concentrated in the middle.

The socio-economic profile of individuals across the quintiles based on their housing conditions and assets is depicted below (Table 5.3). The commonly observed trend was that the wealthier groups (higher quintiles), had good housing conditions and ownership of the assets and animals depicted, signified by an increase in percentage. For example, looking at housing structure for individuals in the upper quintiles, a small proportion shared a flush toilet with other households, they had water piped into their dwelling and they mainly used electricity as a source of fuel to cook. Roof quality was not significantly different as some household still had asbestos roofs whilst others did not. Those in the upper quintiles also tended to own cars. Given that this was an urban setting, the animal ownership variables indicated that individuals who did not own a particular animal were of better socio-economic status than those who owned a few animals (i.e. below the mean), but they were less well off than those who owned a lot of animals (i.e. above the mean).

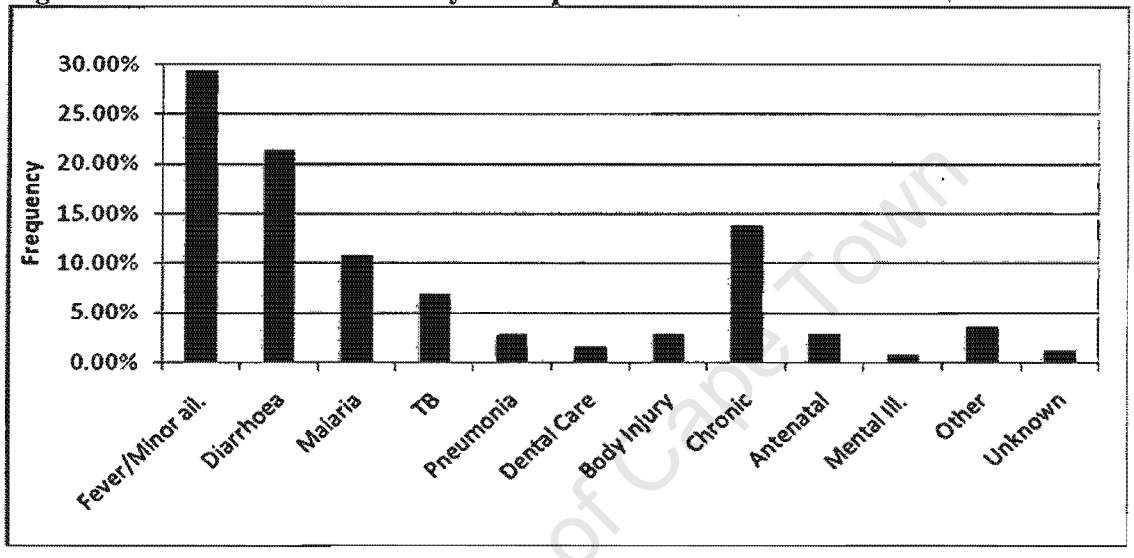
**Table 5.3 Socioeconomic quintiles and asset ownership**

| | Socio-economic Quintiles | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| | (%) | (%) | (%) | (%) | (%) |
| *Housing* | | | | | |
| Roof high quality | 26.09 | 27.02 | 24.54 | 24.31 | 26.44 |
| Share flush toilet | 77.49 | 55.81 | 59.79 | 15.97 | 30.37 |
| Water (piped into dwelling) | 67.26 | 77.78 | 82.06 | 76.39 | 80.37 |
| Fuel (electricity) | 72.63 | 79.29 | 89.07 | 100 | 94.76 |
| *Household Asset ownership* | | | | | |
| Cellphone | 64.45 | 46.21 | 90.72 | 100.00 | 97.91 |
| Fridge | 41.94 | 31.31 | 59.59 | 96.53 | 89.27 |
| *Means of Transport* | | | | | |
| Car | 3.32 | 4.80 | 4.95 | 11.81 | 62.30 |
| Motorcycle | 2.56 | 1.77 | 0.82 | 0,00 | 3.40 |
| Bicycle | 19.95 | 17.68 | 8.25 | 15.63 | 36.65 |
| *Animal ownership* | | | | | |
| Chickens | 53.96 | 11.36 | 5.36 | 4.86 | 33.25 |
| <mean (23) | 53.96 | 10.35 | 4.95 | 0.00 | 6.81 |
| >mean (23) | 0.00 | 1.01 | 0.41 | 4.86 | 26.44 |
| Goats | 53.45 | 9.09 | 8.45 | 3.82 | 37.96 |
| <mean (12) | 53.45 | 6.57 | 5.57 | 3.82 | 2.62 |
| >mean (12) | 0.00 | 2.53 | 2.89 | 0.00 | 35.34 |
| Cows | 69.05 | 23.99 | 15.26 | 12.50 | 56.54 |
| <mean (10) | 64.19 | 23.99 | 7.84 | 11.81 | 10.73 |
| >mean (10) | 4.86 | 0.00 | 7.42 | 0.69 | 45.81 |

### 5.2.2 Morbidity Profile

A total of 248 people out of 2302 (10.77%) reported an illness or some health problem in the preceding month at the time of the survey. Of these, 167 were adults and 81 were children. The various ailments were depicted below (Figure 5.1).

**Figure 5.1 Perceived morbidity in the past 4 weeks**






The most common illnesses observed were fever/minor ailments (29.44%), diarrhoea (21.37%), malaria (10.89%), TB (6.85%) and chronic illnesses (13.71%). The rest of the illnesses such fell below 5% - such as pneumonia (2.82%), dental care (1.61%), body injury (4.84%), antenatal care (2.82%), mental illness (0.81%) and other illnesses (3.63%). The other category comprised of illnesses such as sexually transmitted diseases, epilepsy, viral infections and skin conditions. Three degrees of illness severity were also differentiated across the illnesses– mild, moderate and severe, based on the respondent's perception. Of the reported illnesses, a small percentage (17.34%) were classified as mild, almost half (49.19%) were moderate and 33.47% were classified as severe. A few of the illness categories could be compared to statistics on Zimbabwe. It has been estimated that 0.6% of the Zimbabwean population suffers from TB (WHO, 2008), 33.7% suffers from malaria (USDFA, 2008) and 11.0% from chronic illnesses (US Census Bureau, 2004). A much higher proportion of individuals were found to suffer from TB and chronic illnesses in the study, this can be attributed between time differences of these estimates and the current study. Reported

malaria cases were fewer than the estimates (~ 10%), but observed fever cases were high, of which some may have been undiagnosed malaria cases.

### 5.2.3 Health Care Utilization Patterns in the Event of Illness

In the event of an illness, individuals pursued various actions of care. For the purpose of this study, these were grouped into – no care, seeking care at a public facility, private facility and other care. The other care group included seeking care at a pharmacy, traditional healer, faith healer and self care. Health care utilization by suburb is depicted below (Table 5.4)

**Table 5.4 Health care utilization patterns by suburb**

| | Glen View | Dzivarasekwa | Kuwadzana | Total (n) | Total (%) |
|---|---|---|---|---|---|
| Public Facility | 33 (34.38%) | 32 (44.44%) | 44 (55.70%) | 109 | 44.13 |
| Private Facility | 24 (25.00%) | 9 (12.50%) | 11 (13.92%) | 44 | 17.81 |
| Other Care | 8 (8.33%) | 2 (2.78%) | 5 (6.33%) | 15 | 6.07 |
| No Care | 31 (32.29%) | 29 (40.28%) | 19 (24.05%) | 79 | 31.98 |
| Total | 96 (100.0%) | 72 (100.0%) | 79 (100.0%) | 247* | 100.00 |

***Note:** it was unknown where one of the respondents sought care; hence the result was excluded from this table

Firstly, looking at utilization by facility type, it was observed that seeking care at a public facility (44.13%) was the most frequently used choice of care when one fell ill. 31.98% of the people chose to do nothing or not seek care when they fell ill. A smaller percentage, 17.81% sought care at a private facility. Other care was a less frequently used form of care, with only 6.07% of individuals pursuing this route of action. This largely constituted individuals who sought care at a pharmacy (73.33%). Focusing on choice of care by suburb, it was observed that utilization varied across the three suburbs. Kuwadzana had the highest proportion (55.70%) of individuals who sought care at a public facility. Glen View had the highest proportion of individuals who sought care at a private facility (25.00%) and other care (8.33%). Dzivarasekwa had the highest proportion of individuals who did not seek care in the event of an illness. These differences in utilization by suburb can be attributed to some of the socio-economic characteristics of the suburbs – low unemployment levels in Glen View and high unemployment in Dzivarasekwa. Given that nearly a third of the study population did not seek care, it was important to understand the various reasons behind this decision.

Multiple reasons from respondents were permitted. The sited reasons were listed in the table below (Table 5.5) in order of the frequently observed.

**Table 5.5 Reasons for not seeking care**

| Reason | Percentage (%) Agreed |
|---|---|
| Too Expensive | 57.69% |
| Had drugs at home | 56.41% |
| Wasn't that sick | 43.59% |
| No medicines available at facility | 24.36% |
| Previous bad experience | 20.51% |
| Service would be bad | 19.23% |
| Service too far | 17.95% |
| No transport | 13.16% |
| Inappropriate provider | 8.97% |
| Other reasons | 8.22% |
| Unsure where to go | 7.69% |
| Denied care | 2.56% |



The most commonly cited reasons for not seeking care were that the treatment was too expensive (57.69%), individuals had medicine at home (56.41%) or they were not that sick (43.59%). This highlighted the importance of perceived cost and severity of illness and their influence on the decision to seek care. Health service provider characteristics such as availability of drugs and attitudes of health care providers were also important. 24.36% of the individuals who did not seek care attributed this to the unavailability of drugs at the health care facility. 20.51% and 19.23% of individuals felt that they had a previous bad experience and the service would be bad respectively. This highlights the negative views individuals had of the health care services. Less frequently cited reasons were that the service was too far (17.95%), no transport available (13.16%), inappropriate provider (8.97%), uncertainty in where to go (7.69%) and denial of care (2.56%). Those who cited other reasons (8.22%), included responses from individuals who were members of the religious group, Apostolic Sect, who do not seek care in the event of an illness and it also included responses from individuals who wanted to seek care outside the country.

Focusing on the use of health care services by illness type (Table 5.6), provided an understanding of where individuals with particular illnesses sought care.

**Table 5.6 Health Care Utilization by Illness Type**

| Illness Type/ Health Problem | Public Facility (%) | Private Facility (%) | Other Care (%) | No Care (%) | Total (%) |
|---|---|---|---|---|---|
| Fever/Minor ailments | 35.21 | 8.45 | 7.04 | 49.30 | 100.00 |
| Diarrhoea | 35.85 | 20.75 | 3.77 | 39.62 | 100.00 |
| Malaria | 48.15 | 18.52 | 3.70 | 29.63 | 100.00 |
| TB | 88.24 | 11.76 | 0.00 | 0.00 | 100.00 |
| Pneumonia | 71.43 | 0.00 | 0.00 | 28.57 | 100.00 |
| Dental Care | 25.00 | 25.00 | 0.00 | 50.00 | 100.00 |
| Body Injury | 66.67 | 16.67 | 0.00 | 16.67 | 100.00 |
| Chronic | 30.30 | 51.52 | 3.03 | 15.15 | 100.00 |
| Antenatal | 83.33 | 0.00 | 16.67 | 0.00 | 100.00 |
| Mental Illness | 0.00 | 0.00 | 0.00 | 100.00 | 100.00 |
| Other | 88.89 | 0.00 | 0.00 | 11.11 | 100.00 |
| Unknown | 0.00 | 0.00 | 33.33 | 66.67 | 100.00 |



The majority of individuals with a fever/minor ailment resorted to not seeking care (49.30%) or sought care at a public facility (35.21%). Those suffering from diarrhoea largely did not seek care at all (39.62%) or they sought care at a public facility (35.85%). Those individuals suffering from malaria largely resorted to seeking care at a public facility (48.15%) or did not seek care at all (29.63%). Those with TB and pneumonia mainly sought care at a public facility (88.24% and 71.43% respectively). Those with dental care needs largely did not seek care at all (50.00%), which is very concerning, and the remainder equally sought care at a public or private facility (25.00%). The majority of those with body injuries sought care at a public facility (66.67%). Those with chronic illnesses commonly sought care at a private facility (51.52%) or at a public facility (30.30%). Only a small percentage of those with chronic illnesses did not seek care at all (15.15%). Individuals with antenatal care needs sought care at a public facility (83.33%). All those individuals suffering from mental illness resorted to not seeking care at all (100.00%). Individuals with other illnesses such as STDs and epilepsy largely resorted to seeking care at a public facility (88.89%). Those individuals whose illness was unknown largely did not seek care at all (66.67%). Overall it was observed that the most common routes of action were seeking care at a public facility or not seeking

care at all, except for those suffering from chronic illnesses who largely sought care at a private facility.

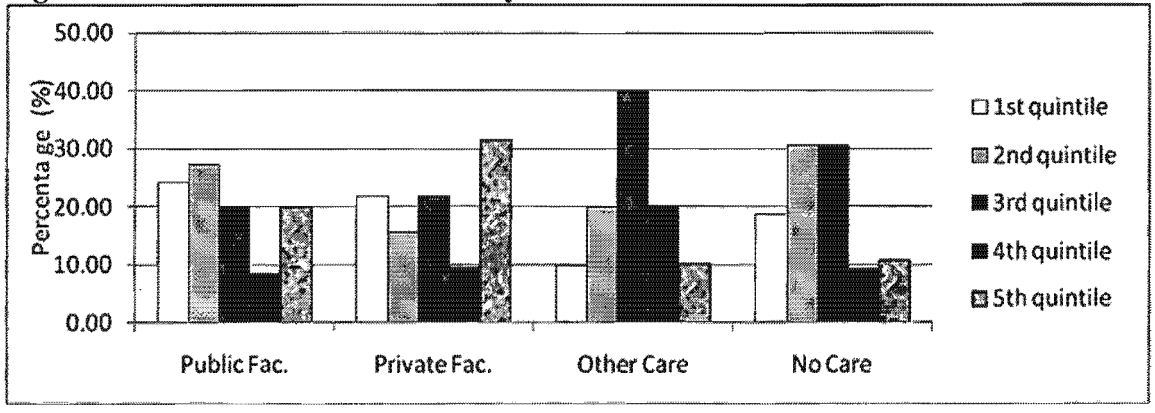
Illness severity is an important determinant of health care utilization. Health care utilization by illness severity was depicted below (Table 5.7). Individuals self-assessed their severity of illness; the majority of individuals who suffered a mild illness did not seek care (52.38%). With an increase in illness severity, the proportion of individuals who did not seek care decreased, and instead some sort of care was sought. Individuals with a moderate illness largely sought care at a public facility (50.00%). Those with a severe illness largely sought care at a public facility (49.40%). Other care was largely sought by those with mild illnesses (14.29%).

**Table 5.7 Health care utilization by illness severity**

| Illness Severity | No Care (%) | Public Fac. (%) | Private Fac. (%) | Other Care (%) | Total (n) | Total (%) |
|---|---|---|---|---|---|---|
| Mild | 52.38 | 16.67 | 16.67 | 14.29 | 42 | 100 |
| Moderate | 31.97 | 50.00 | 14.75 | 3.28 | 122 | 100 |
| Severe | 21.69 | 49.40 | 22.89 | 6.02 | 83 | 100 |

Socio-economic status has been extensively shown to influence health care utilization in a number of studies, therefore it was important to understand the influence it had in this study population. There were key differences observed in the utilization of health care services by socio-economic status (Figure 5.2).

**Figure 5.2 Health care utilization by socio-economic status**



Starting with public facilies, it was observed that the majority of individuals who sought care there were mainly in the lower quintiles (the poorest). Public care was sought much less by those in the 4th quintile, however those in the 5th quintile also used these same services as much as groups in the lower quintiles. The lower quintiles employed the use of private facilities in a comapratiely similar manner, however what stood out is that those in the 5th quintile made the highest proportion of individuals who sought private care. Other care was largely sought by those in the middle quintile. What can be observed is an increase in the proportion of individuals who use other care until the middle quintile, then there is a decrease in the proportion of individuals who seek other care for the higher quintiles. Focusing on no care, individuals in the middle and lower quitniles largely resorted to not seeking care, but this was not as common for higher quintiles.

The possession of health insurance or some sort of health coverage is important in the use of health care services. Information regarding medical aid was collected only for those who sought care. This information by health care facility was presented below (Table 5.8). Government subsidy was offered to individuals evaluated by a social worker and deemed unable to pay for public health care. Medical aid ownership and government subsidy were low, with 31.14% and 6.88% of individuals who sought care having these respectively. Furthermore, medical aid ownership varied across the three types of care. The majority (54.55%) of those who sought care at a private facility possessed medical aid. A significantly lower proportion of individuals who sought care at public facilities (23.15%) and other care (20.00%) had medical aid ownership. Government subsidy was generally low, 9.43% and 2.50% of individuals who sought care at public facilities and private facilities had access to government subsidy. None of the individuals who sought other care were in possession of government subsidy.

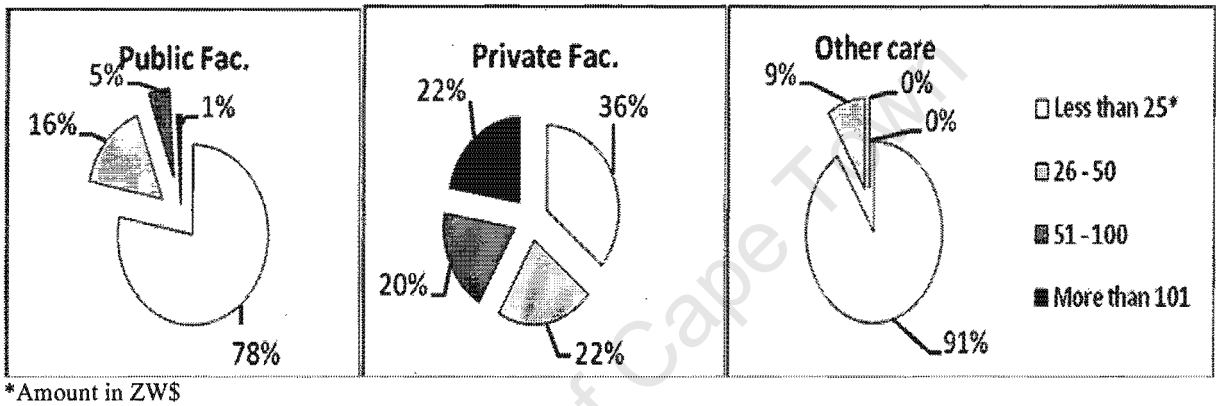


**Table 5.8 Health care utilization by health insurance and government subsidy**

| | | Public Fac. (%) | Private Fac. (%) | Other Care (%) | Total (n) | Total (%) |
|---|---|---|---|---|---|---|
| Medical Aid | | | | | | |
| | No | 76.85 | 45.45 | 80.00 | 115 | 68.86 |
| | Yes | 23.15 | 54.55 | 20.00 | 52 | 31.14 |
| Government Subsidy | | | | | | |
| | No | 90.57 | 97.50 | 100.00 | 149 | 93.13 |
| | Yes | 9.43 | 2.50 | 0.00 | 11 | 6.88 |

Even with the possession of medical aid or government subsidy, the majority of individuals still had to pay cash upfront for health care services. In seeking care, the majority (82%) of individuals had to pay for care. The amount paid for care ranged from ZW$1 to 500 million[7]. The amount paid varied by facility type (Figure 5.3), with low payments being largely at the public facilities (78%) and other care (91%). Higher costs were largely encountered at private facilities (22%) and rarely at public facilities (1%).

**Figure 5.3 Amount paid by facility type**



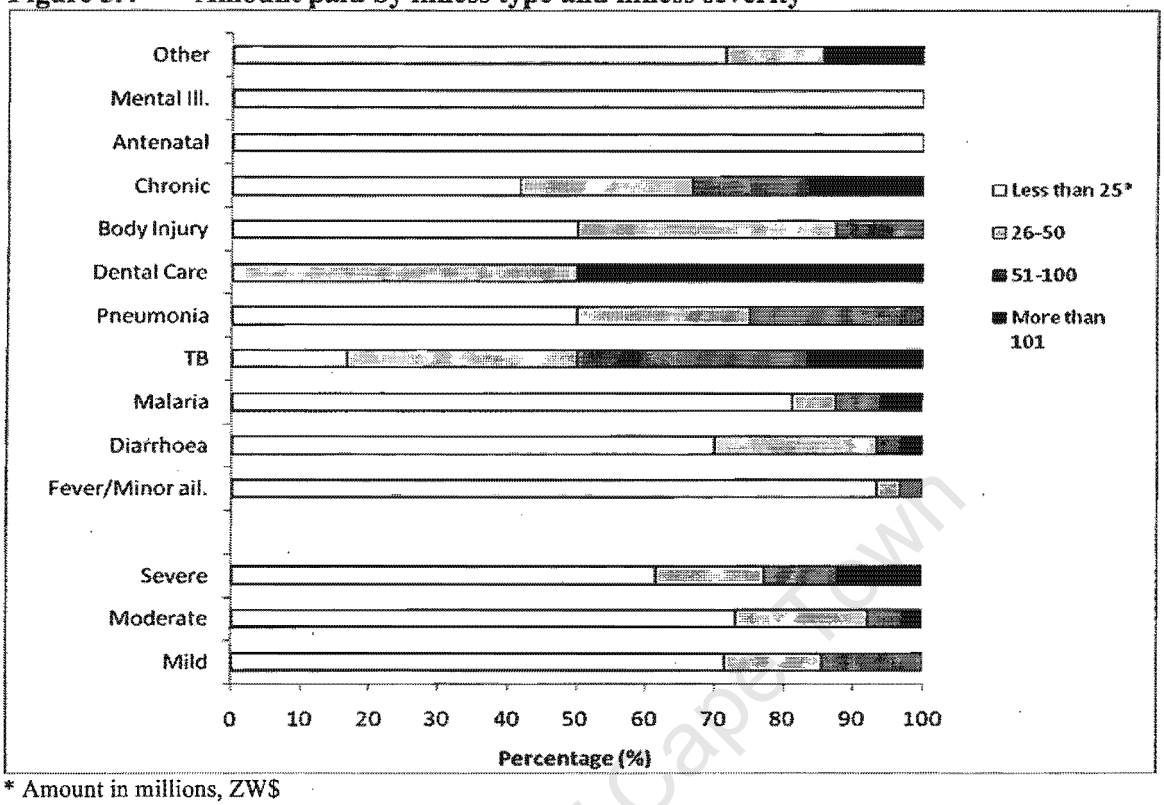

*Amount in ZW$

The amount paid also varied by both the type of illness and illness severity (Figure 5.4). Payments were generally low across a number of illnesses. Varying and much higher costs were encountered for chronic illnesses, dental care needs and TB. Illness severity also influenced the amount paid. Generally costs were much lower for mild illnesses and higher costs were encountered for severe illnesses. Even though the cost of health care services seemed low, the average salary payment for a public school teacher at that time was ZW$180million (approximately US$36-45). Two thirds of those who paid for health care services felt the cost was too high.



[7] Exchange rate between the ZW$ and the US$ at that time was approximately: 1 US$ equivalent to between 4-5million ZW$, therefore ZW$1 = US$ 0.20-0.25 and ZW$500 million = US$100-120

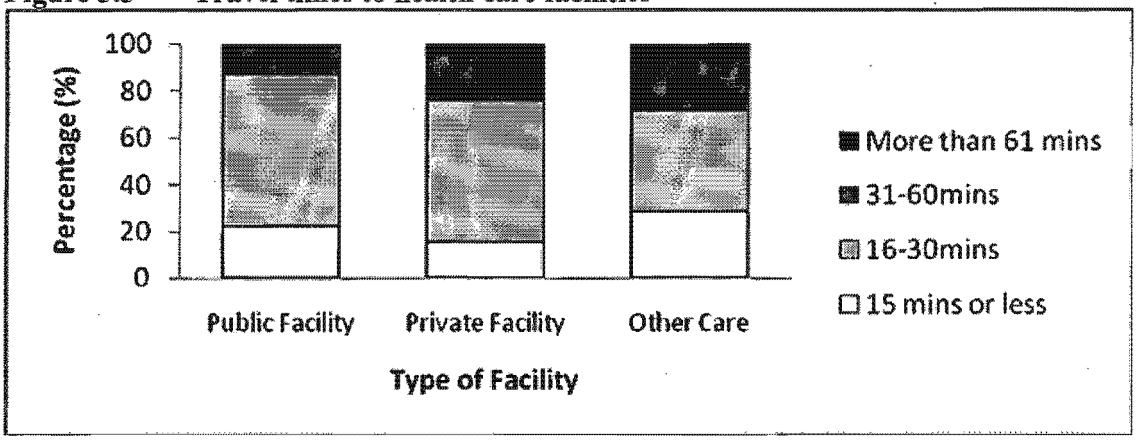
**Figure 5.4 Amount paid by illness type and illness severity**




* Amount in millions, ZW$

Focusing on the time taken to health care facilities (Figure 5.5), the majority of individuals took less than 30 minutes to reach their health care facility of choice. Travel times ranged from 2 to 240 minutes. Those seeking private or other forms of care encountered longer travel times as compared to those seeking public care. Transport modes are discussed further on in comparison to the 2002 situation.

**Figure 5.5 Travel times to health care facilities**



Health care service delivery characteristics obtained through the assessment of availability of drugs, quality of services and satisfaction with health care services rendered was important. The table below provided an illustration of respondents' experiences at various health care facilities with regard to these characteristics (Table 5.9).

**Table 5.9 Availability of drugs, Perceived Quality and Satisfaction by Facility Type**

| | Public Facility (%) | Private Facility (%) | Other Care (%) | Overall (%) |
|---|---|---|---|---|
| Availability of drugs | | | | |
| No | 49.53 | 23.81 | 0.00 | 38.65 |
| Yes | 50.47 | 76.19 | 100.00 | 61.35 |
| Quality of service (Level of Cleanliness) | | | | |
| Poor | 7.55 | 2.44 | 7.14 | 6.21 |
| Good | 92.45 | 97.56 | 92.86 | 93.79 |
| Satisfied | | | | |
| Not Satisfied | 33.33 | 9.76 | 21.43 | 26.38 |
| Satisfied | 66.67 | 90.24 | 78.57 | 73.62 |



Overall, the majority of individuals (61.35%) found that drugs were available at their particular choice of care. Importantly, the availability of drugs varied by the type of care sought. Only 50.47% of individuals found that drugs were available at public facilities. Conversely, a higher proportion of those who sought private care found drugs available (76%). This was even higher for those who sought other care (100%) – this was plausible as other care largely constituted of individuals who sought care at pharmacies, where drugs are readily available. The majority (91%) of those who did not find drugs available at their health care facility of choice resorted to purchasing drugs elsewhere.

An indicator denoting quality of service was the cleanliness of the facilities, which was overall high at all the facilities (93.79%). The level of satisfaction with health care services was also overall high (73.62%), although this varied by the type of care sought. Those individuals who were attended to at private facilities were the most satisfied with care (90.24%), followed by those who sought other care (78.57%). However, public facilities had a much lower proportion of satisfied individuals (66.67%). Focusing on those who were not

satisfied with care (26.38%), of these individuals, nearly two thirds sought some other care elsewhere. There was a transition noted in where care was sought between the 1st and 2nd choice of care (Table 5.10). There was a huge transition noted in that a majority of individuals (80.77%) who sought care at a public facility tended to move to other forms of care, mainly at a pharmacy (69.23%).

**Table 5.10 Health care visits by those not satisfied with care**

| | Public Facility | Private Facility | Other Care | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | Mission Facility | Pharmacy | Traditional Healer | Faith Healer | Self Care | |
| **1st Choice** | 21 (80.77%) | 3 (11.54%) | 0 (0.00%) | 0 (0.00%) | 1 (3.85%) | - | 1 (3.85%) | **26 (100%)** |
| **2nd Choice** | 1 (3.85%) | 1 (3.85%) | 1 (3.85%) | 18 (69.23%) | 2 (7.69%) | 1 (3.85%) | 2 (7.69%) | **26 (100%)** |



## 5.3 Econometric Results

### 5.3.1 Binary Choice Model

In order to assess the factors that influenced the use and non-use of health care services, a binary choice model was used for the analysis. The results of the analysis are shown below (Table 5.11). The full results of the logit model are presented in Appendix B.5. A total of 174 observations were used for the analysis that is excluding those observations STATA automatically removed from the analysis (see note overleaf in Table 5.11).

The model is statistically significant at the 1% level of significance (LR chi^2 = 31.42, p-value = 0.0005). The pseudo-R-squared value measures the goodness of fit of the model. This value is relatively low (pseudo-R-squared = 0.1379). The R-squared value is usually low for discrete choice models; for a more detailed discussion see Greene (2000). The coefficients are interpreted whilst keeping other variables constant. Gender, household size and illness severity were the only variables statistically significant at the 5% level. Only results at the 5% level of significance were deemed statistically significant in this study.

**Table 5.11 Logit Regression Analysis Results: Care vs. No Care**

| Variable | Coefficient | P<\|z\| |
|---|---|---|
| Age | -0.0001 | 0.992 |
| Gender (Female = 1) | 0.9528 | 0.012** |
| Gender of Household Head | 0.3184 | 0.586 |
| Marital Status of Household Head | 0.6185 | 0.227 |
| Education Level of Household Head | 1.0630 | 0.106 |
| Household Size | 0.3502 | 0.009*** |
| Socio-economic Status | 0.1013 | 0.417 |
| Illness Severity | 1.1068 | 0.000*** |
| Religion | 0.5053 | 0.347 |
| Informally Employed (Household Head) | -0.0214 | 0.954 |
| _cons | -5.3114 | 0.000 |

**Model:** *n = 174, LR chi^2 = 31.42, p-value = 0.0005, pseudo R2 = 0.1379*
**Significance level:** *significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level
**Note:** 13 observations for Unemployment (Household Head) perfectly contributed to success (i.e. individuals sought care), hence these were automatically excluded in the regression analysis by STATA



The results revealed that gender had a positive coefficient, indicating that females had a higher propensity to seek care as compared to their male counterparts and this finding was statistically significant (p-value = 0.012). The coefficient for household size was also positive, indicating that individuals from large sized households were more likely to seeking care rather than not seek care; this result was also statistically significant (p-value = 0.009). Another finding from the regression analysis was that the coefficient for illness severity was positive, thereby indicating that individuals suffering from a severe illness were more likely to seek care rather than not seek care. This finding was highly statistically significant (p-value = 0.000). Interestingly, the remaining variables – age, gender of household head, marital status of household head, socioeconomic status and employment status of household head did not have statistically significant coefficients as their p-values > 0.05. Therefore these variables did not influence the choice to seek care or not. Of these ten regression variables, only 50% were in line with the expected coefficient signs presented in Table 4.2 – which were marital status of household head, education level of household head, socioeconomic status, illness severity and employment status.

### 5.3.2 Multinomial Logit Model

In order to assess the factors that influence the different types of care sought, a multinomial regression analysis was used. The outcomes for the dependent variable were public care, private care, other care and no care, with public care taken as the base/ comparison category in the analysis. Given that very few individuals (25%) in the other care group used traditional healers or self care, the other care group in the regression analysis was taken as those who sought care at a pharmacy. The results for this analysis are presented in three parts overleaf for private care, other care (pharmacy) and no care (Tables 5.12 – 5.14). The full results for the multinomial logit regression are presented in Appendix B.6. A total of 184 observations were used in the analysis. The model was statistically significant at the 1% level of significance (LR chi^2 = 79.21 and p-value = 0.000). The pseudo-R-squared value was also found to be low (pseudo-R-squared = 0.1899). Similarly, as mentioned with the binary choice model, discrete choice models such as these generally have low R-squared values. The coefficients in this model are also interpreted whilst keeping other variables constant. Each of the results is discussed below for all types of care, starting with private care.



#### (i) Private Care

The results for private care (Table 5.12) revealed that only employment status of household head was statistically significant at the 5% level of significance and the gender of household head was statistically significant at the 10% level of significance. The coefficient for gender of household head was found to be positive, thereby indicating that individuals from female headed households were more likely to seek care at a private facility rather than seek public care. However, this result was only significant at the 10% level of significance (p-value = 0.088). The coefficients for informal employment and unemployment of household head were positive, thereby indicating that individuals with such household heads were more likely to seek private care as compared to individuals with formally employed household heads. These findings were statistically significant (p-value = 0.035 and p-value = 0.016). The remaining demographic, socio-economic and illness categories did not have statistically significant coefficients as their p-values > 0.05. Of the 11 regression variables, 5 were in line with expected coefficient signs in Table 4.3, which were – marital status of household head, education level of household head, household size, socioeconomic status and illness severity.

**Table 5.12 Multinomial Regression Analysis Results: Private Care vs. Public Care**

| Variable | Coefficient | P<\|z\| |
|---|---|---|
| Age | -0.0019 | 0.899 |
| Gender | 0.2349 | 0.653 |
| Gender of Household Head | 1.3097 | 0.088* |
| Marital Status of Household Head | 0.4410 | 0.563 |
| Education Level of Household Head | 0.5813 | 0.620 |
| Household Size | -0.1615 | 0.287 |
| Socio-economic Status | 0.1665 | 0.275 |
| Illness severity | 0.2970 | 0.466 |
| Religion | 0.3471 | 0.585 |
| Informally Employed (Household Head) | 1.2750 | 0.035** |
| Unemployed (Household Head) | 2.0284 | 0.016** |
| _cons | -3.2564 | 0.100 |

**Model:** *n = 184, LR chi^2 =79.21, p-value = 0.0000, pseudo R2 = 0.1899*
**Significance level:** *significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level



### (ii) Other Care (Pharmacy)

The results for other care (Table 5.13) revealed that only illness severity was statistically significant at the 5% level of significance.

**Table 5.13 Multinomial Regression Analysis Results: Other Care vs. Public Care**

| Variable | Coefficient | P<\|z\| |
|---|---|---|
| Age | -0.0221 | 0.580 |
| Gender | 1.2621 | 0.277 |
| Gender of Household Head | -31.5841 | 1.000 |
| Marital Status of Household Head | 18.4959 | 0.998 |
| Education Level of Household Head | 17.2477 | 0.998 |
| Household Size | -0.2744 | 0.474 |
| Socio-economic Status | 0.1019 | 0.728 |
| Illness Severity | -1.5728 | 0.042** |
| Religion | 0.4320 | 0.766 |
| Informally Employed (Household Head) | -0.0111 | 0.990 |
| Unemployed (Household Head) | -34.3362 | 1.000 |
| _cons | -33.9782 | . |

**Model:** *n = 184, LR chi^2 =79.21, p-value = 0.0000, pseudo R2 = 0.1899*
**Significance level:** *significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level

The coefficient for illness severity was found to be negative, thereby indicating that individuals with mild illnesses were more likely to seek care at a pharmacy rather than seek public care. The remaining demographic and socio-economic variables were found to be statistically insignificant as shown by the p-values > 0.05. Of the 11 regression variables, 7 were in line with expected coefficient signs presented in Table 4.4, which were marital status of household head, education level of household head, socio-economic status, illness severity, religion, informally employed household head and unemployed household head.

### (iii) No Care

The results for no care (Table 5.14) revealed that gender, household size and illness severity were the only statistically significant variables at the 5% level of significance.



**Table 5.14 Multinomial Regression Analysis Results: No Care vs. Public Care**

| Variable | Coefficient | P<\|z\| |
|---|---|---|
| Age | -0.0022 | 0.862 |
| Gender | -0.8087 | 0.042** |
| Gender of Household Head | 0.0290 | 0.963 |
| Marital Status of Household Head | -0.4271 | 0.426 |
| Education Level of Household Head | -0.8903 | 0.194 |
| Household Size | -0.4038 | 0.004*** |
| Socio-economic Status | -0.0689 | 0.604 |
| Illness Severity | -1.2233 | 0.000*** |
| Religion | -0.4929 | 0.383 |
| Informally Employed (Household Head) | 0.2694 | 0.505 |
| Unemployed (Household Head) | -34.8406 | 1.000 |
| _cons | 5.6663 | 0.000 |

**Model:** *n = 184, LR chi^2 =79.21, p-value = 0.0000, pseudo R2 = 0.1899*
**Significance level:** *significant at 0.10 level, **significant at 0.05 level, ***significant at 0.01 level

The coefficient for gender was found to be negative, indicating that females were more likely to seek care at a public facility rather than not seek care. The result was statistically significant (p-value = 0.042). The coefficient for household size was found to be negative, indicating that small sized households were more likely to not seek care as compared to seeking public care. This finding was statistically significant (p-value = 0.004). Illness severity was found to have a negative coefficient, revealing that individuals with mild

illnesses were more likely to not seek care as compared to seeking public care. The remaining demographic and socio-economic variables were found to be statistically insignificant as shown by the p-values > 0.05. Of the 11 regression variables, 7 were in line with expected coefficient signs presented in Table 4.5, which were age, gender of household head, marital status of household head, education level of household head, socio-economic status, illness severity and informally employed household head.

### 5.3.3 Hausman Specification Test

The multinomial logit modal assumes the Independence of Irrelevant Alternatives (IIA) property, which implies that the ratio of probabilities of choosing any two alternatives is independent of the availability of any other alternative in the choice set (Hausman & McFadden, 1984). Put simply, if two choices exist in a model, then the addition of a third choice should not change the relative probabilities of the initial choices. In order to test for this property, the Hausman specification test was used. The test is based on eliminating one or more alternatives from the choice set (Hausman & McFadden, 1984). The model was re-estimated after dropping other care (pharmacy) and the coefficients compared to the results of the full choice set. The estimated coefficients were approximately the same for all the variables after dropping other care from the choice set (Appendix B.7). The estimated coefficient signs also remained the same for all of the variables. The test revealed that there was no systematic difference between the original and the estimator coefficients, but the finding was however statistically insignificant (p-value = 1.000). This may be attributed to the fact that the sample size of individuals who fell ill was small. However these findings from the Hausman specification test do not undermine the results from the multinomial logit regression model.



## 5.4 Health Care Utilization Before 2002

This section focused on the use of health care services before 2002 - that is before the economic crisis ensued. Respondents were asked if they sought care when they fell sick. The use of such a long recall period introduces recall bias; however valuable information regarding patterns of use was obtained from this evaluation. A large majority (98.89%) said they did seek care, a smaller percentage (0.93%) did not seek care and 0.18% was unsure if

they did seek care when they fell sick. Those who did not seek care were mainly of the Apostolic Sect; therefore, by religious belief they do not seek care. Less commonly cited reasons for not seeking care were that the individuals did felt their sickness was not severe enough to warrant seeking the use of a health care service and health care services were unaffordable. The table below portrays the use of health care services in 2002 from the respondents point of view, and offers a comparative view in the year 2008 (Table 5.15).

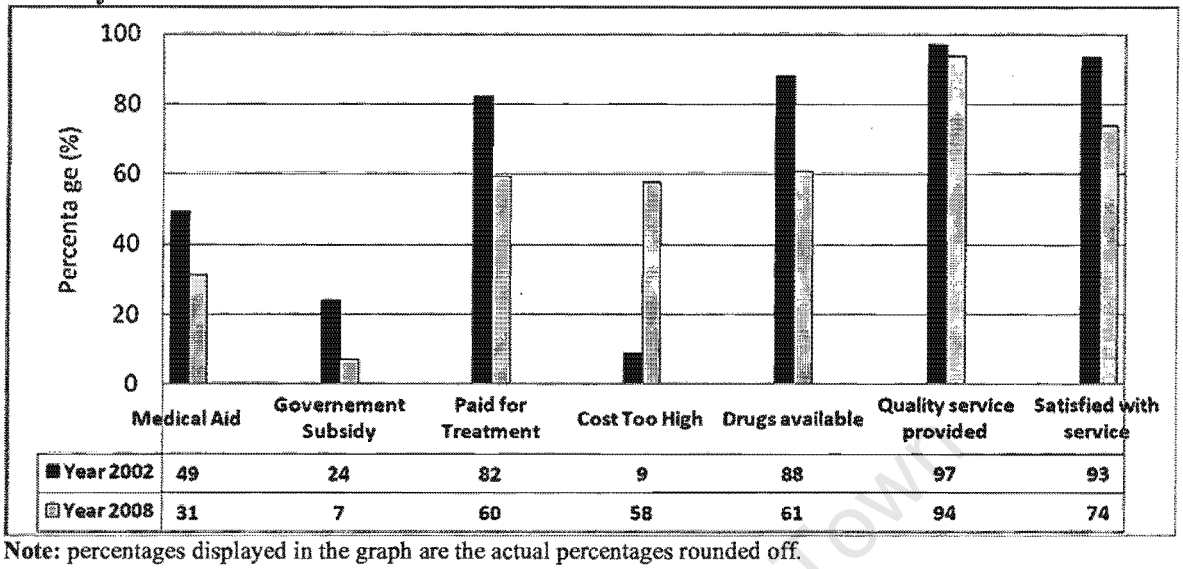
**Table 5.15 Use of health care services in 2002**

| | 2002 | | Comparison to 2008 | |
|---|---|---|---|---|
| **Type of Care Sought** | **Total (n)** | **Total (%)** | **Total (n)** | **Total (%)** |
| Public Facility | 1,643 | 73.02 | 109 | 44.13 |
| Private Facility | 512 | 22.76 | 44 | 17.81 |
| Other Care | | (3.29) | | (6.07) |
| Mission Facility | 54 | 2.40 | - | - |
| Pharmacy | 4 | 0.18 | 11 | 4.45 |
| Traditional Healer | 6 | 0.27 | 2 | 0.81 |
| Faith Healer | 10 | 0.44 | - | - |
| Self-care | - | - | 2 | 0.81 |
| No Care | 21 | 0.93 | 79 | 31.98 |
| **Total** | **2,250** | **100.00** | **247** | **100.00** |

Focusing on the use of health care services in 2002, the majority of individuals (73.02%) used public facilities, 22.76% used private care and a much smaller percentage (3.29%) used other forms of care. Comparing these results to those of 2008, it can be observed that the use of public care has greatly declined, and now a larger proportion of individuals choose to not seek care in the event of an illness. The use private facilities have also slightly declined. The use of other care has almost doubled in 2008 as compared to before 2002.

The responsiveness of individuals to the health care system in 2002 was also important to ascertain. The profile of individuals in regard to medical aid ownership in addition to the responsiveness to the health care system in 2002 was determined by assessing information such as service cost, availability of drugs and service quality. This information was compared to the current situation in 2008 (Figure 5.6).

**Figure 5.6 Comparison of profile of individuals and responsiveness to health care delivery: 2002 versus 2008**




**Note:** percentages displayed in the graph are the actual percentages rounded off.

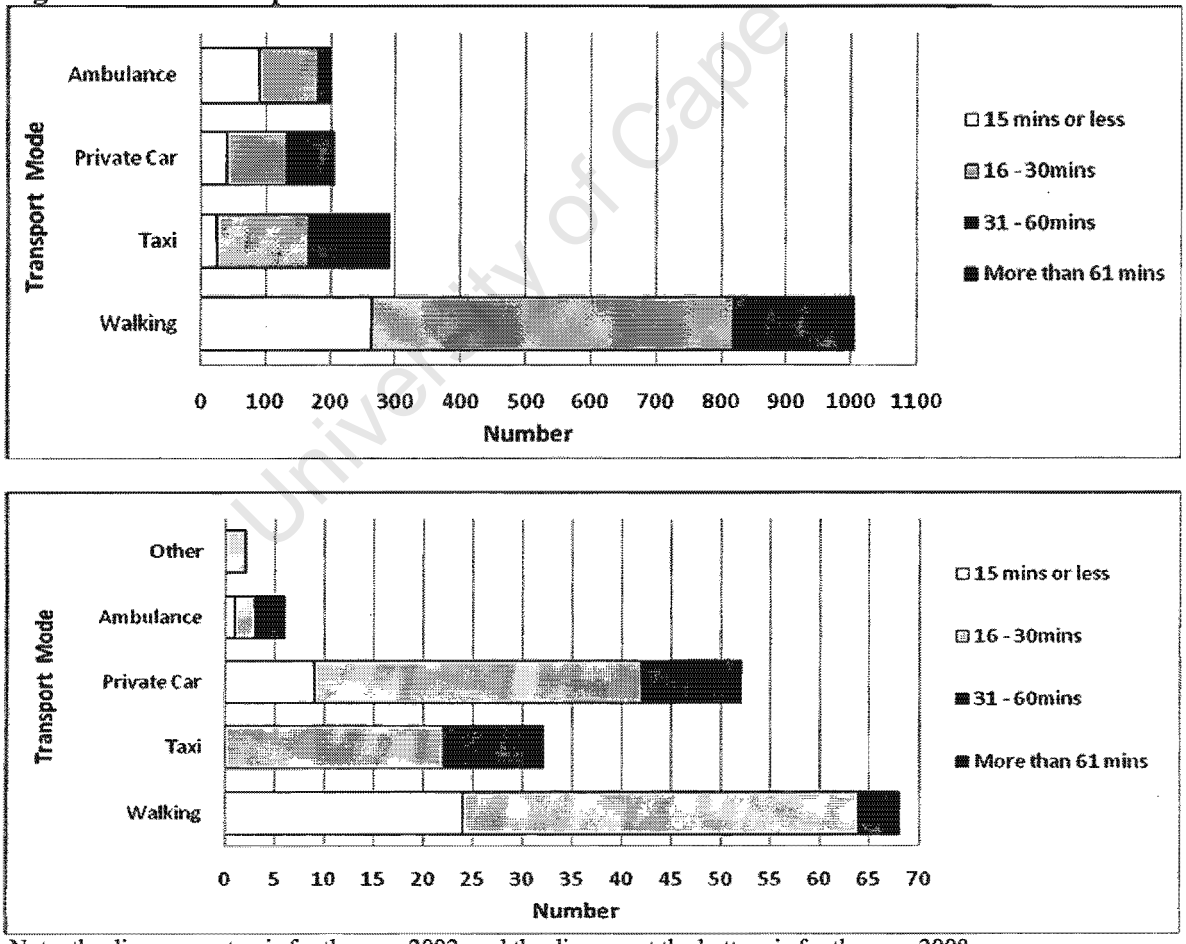
In 2002, nearly half of the individuals (49.14%) had medical aid and a lower percentage (24.02%) had government subsidy. The majority of individuals had to pay for health care services (81.98%). The actual cost of service was not ascertained due to difficulties in accurately determining the figure. Nonetheless, the majority of individuals (91.23%) did not feel the cost of health care services was high. Focusing on some health service characteristics, the majority of individuals (87.95%) were able to find drugs available at their facility of choice. Furthermore, the majority of individuals (96.96%) felt that the service quality was good and most of the individuals were also satisfied with the health care services rendered in 2002. Overall the majority of individuals felt that good quality services were provided and at an affordable cost, which is very important in regard to health care services.

Comparing these findings to the current situation reveals that a larger proportion of individuals paid for service before 2002 as compared to now, but this finding can be attributed to the larger number of individuals who sought care before 2002 as compared to now (2008). Even though more people paid for health care services before 2002, a few people felt that the service cost was too high. The percentage of individuals that feel the cost for health care services is too high now has increased by over sevenfold since before 2002. The availability of drugs has decreased over the years from before 2002 to now. There has

been little change in the perception of quality of health care services. Satisfaction with health care services has also decreased by almost 20% since before 2002. Overall it can be observed that health care service delivery perceptions were much better rated before 2002. Furthermore individuals had better access to medical aid and government subsidy. The costs of services were also perceived by individuals to be more manageable before 2002 as compared to now.

Another important aspect in health care utilization is travel to the health care facility. Hence respondents' modes of transport and travel times were observed (Figure 5.7). Time taken to travel to a health care facility is a function of transport mode.

**Figure 5.7 Transport mode and travel time in 2002 and 2008**




Note: the diagram on top is for the year 2002, and the diagram at the bottom is for the year 2008

In 2002, the majority of individuals walked to their health care facility of choice (57.43%), 18.32% employed the use of a taxi, 12.57% used a private care and 11.68% used an ambulance. In 2008, it was observed that the majority of individuals took less than 30 minutes to get to a health care facility. Commonly used transport modes were walking (42.42%), private cars (31.52%) and taxis (19.39%). Ambulances were a rarely used form of transport (5.45%), which can be attributed to the fuel shortages faced on a nationwide scale. Other modes of transport included two individuals who where immobile and too sick to walk and were transported to health care facilities using a wheelbarrow. Distance was also a proxy for time taken to travel, thus travel time was considered in this case. Comparing the results in the results in 2002 to those of 2008, it was observed that currently fewer people walked to a health care facility. There was instead a significant increase (almost doubled) in the proportion of individuals who used a private car to get a health care facility in 2008. The proportion of individuals who get to a health care facility by ambulance has been cut down by over half from before 2002 to 2008.

## 5.5 Qualitative Analysis Results

In order to put the respondents' behaviour in context with their attitudes and beliefs towards the current health care system, it was important to ascertain where the individuals would seek care in the event that they feel sick. This put in place the perspective of the individual's views of the health care system conditioned by their previous experiences or current perceptions. The results are presented below (Table 5.16).



**Table 5.16 Reasons and types of care in the event of an illness**

| | Public Fac. (%) | Private Fac. (%) | Other Care | | | | | | Total (n) | Total (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mission (%) | Pharmacy (%) | Traditional (%) | Faith (%) | Self Care (%) | Outside Country (%) | | |
| Affordable | 94.46 | 2.38 | 0.3 | 0.69 | 0.2 | 1.78 | 0.2 | 0 | **1,010** | **100** |
| Avail. Drugs | 8.87 | 69.95 | 4.93 | 13.79 | 2.46 | 0 | 0 | 0 | **203** | **100** |
| Quality Service | 7.38 | 88.61 | 1.52 | 1.3 | 0.87 | 0 | 0 | 0.33 | **922** | **100** |
| Close Proximity | 90.29 | 9.71 | 0 | 0 | 0 | 0 | 0 | 0 | **103** | **100** |
| Religious Belief | 0 | 0 | 0 | 0 | 53.85 | 46.15 | 0 | 0 | **13** | **100** |
| No other choice/ previous bad exp. | 19.61 | 17.65 | 9.8 | 0 | 0 | 27.45 | 25.49 | 0 | **51** | **100** |
| **Total (n)** | **1,143** | **1,002** | **32** | **47** | **22** | **38** | **15** | **3** | **2,302** | **100** |
| **Total (%)** | **49.65** | **43.53** | **1.39** | **2.04** | **0.96** | **1.65** | **0.65** | **0.13** | | |

Firstly, focusing on the type of care individuals would seek, nearly half of individuals (49.65%) said they would seek care at a public facility , a similar proportion (43.53%) said they would seek care at a private facility, and the remaining percentage (6.82%) said they would seek other forms of care, which now also included seeking care outside the country. Secondly, focusing on the reasons for these choices of care, there were two main reasons observed which were provided by individuals – affordable care and quality service. Individuals who chose to seek care at a public facility did so largely because it was affordable (94.46%) and that it was within close proximity (90.29%). Individuals who chose to seek care at public facilities did so mainly due to the availability of drugs (69.95%) and quality service that can be provided (88.61%). Looking at other care - individuals who chose to seek care at a mission facility largely did so because they had no other choice or a previous bad experience at other facilities (9.8%). Those who chose to seek care at a pharmacy largely did so due to the availability of drugs (13.79%). Those who chose to seek care with traditional healers (53.85%) and faith healers (46.15%) attributed this mainly to religious beliefs. Those who opted for self care did so largely because they had no other choice or a previous bad experience (25.49%).

Given the degradation in the macro-economic environment, it was important to find out if respondents felt there was a change in health service delivery between 2002 and 2008. The majority of individuals, 58.84% felt there was a change, 26.81% felt there was no change and 14.24% were unsure if there was a change. The results of those who felt there was a change or unsure if there was a change was tabulated (Table 5.17). Overall responses indicated there was predominately a perceived negative change in regard to health service delivery.

**Table 5.17 Perceived change in health care service delivery**

| Reason | Percentage (%) |
|---|---|
| Decreased standards/ Deterioration of health service delivery | 33.73 |
| Drug shortages/ unavailability/ unaffordability | 30.57 |
| Ill-treatment by medical staff/ Prioritization of money instead of providing care/ Bribery | 16.68 |
| Doctors and nurses shortages/ on strike/ brain drain | 10.87 |
| Improved service/ Better access to ARVs | 5.00 |
| Poor management of sewage bursts/ garbage disposal/ water supply | 3.16 |

Over a third of individuals (33.73%) felt there was a negative change in regard to health service delivery – in terms of decreased standards and deterioration of health service delivery. This forms an integral part of attitudes and beliefs individuals have in regard to health care services.

***"Health delivery system has gradually deteriorated and it seems hospitals have no solutions to offer" – 37 woman, Kuwadzana***

***"Deteriorating health care facilities from lack of drugs, doctors, equipment and neglect of environment" – 29 year old man, Kuwadzana***

Drug shortages, unavailability and unaffordability (30.57%) were also key issues that individuals faced. Dug shortages were present on a nationwide basis due the lack of foreign currency to purchase drugs and the low efficiency of the local manufacturing industry. Drugs were available intermittently, even when they were available, they were usually unaffordable. This poses a constraint even for the seemingly well off households, who have no option but to either forfeit receiving care or buy the drugs at exorbitant prices. Furthermore key issues of efficacy of medicines were raised by concerned individuals due to reports that drugs were being stored at improper conditions as a result of constant power outages.

***"Before the economic crisis, drugs were available and provided free of charge, now that no longer happens and one has to buy the medicines" – 39 year old man, Dzivarasekwa***

***"Some drugs from public clinics are not effective, drugs are being stored at room temperatures due to constant power outages and this compromises their quality" – 30 year old male, Kuwadzana***

A number of individuals (16.68%) reported that issues of ill-treatment and bribery of medical staff have been on the increase over the previous years. This also included reports of the prioritization of money over providing care by health care professionals. The majority of health care facilities acted on a cash upfront policy; therefore if one did not have the money in hand they were turned away, regardless of how critical their condition was. This occurred amidst the cash shortage crisis, which therefore resulted in difficulties for a number of individuals. There were also reports of bribery by individuals – medical staff accepted bribes in turn for providing a quick check up and access to medicines that were in dire shortage. This may be a result of the harsh economic times, whereby medical staff has resorted to subsidizing their very low incomes by corrupt means. To many this undermines medical personnel and can in fact deter the future use of such health care services.

*"Nurses are not attending to patients in time and you can end up dying waiting, No medicines available, Medical personnel ends up providing drugs to those who can offer bribes or their relatives only" – 32 year old male, Kuwadzana*

*"Hospitals ill-treat patients and they are more concerned about money and business" – 31 year old male, Kuwadzana*

*"Pregnant women are being ill-treated, nurses are stealing drugs from hospitals and doctors are no longer helping patients in time"- 50 year old man, Glen View*

Approximately 10.87% of the respondents noted that there has been a change in the availability of doctors and nurses over the previous years. They are now regarded to be much fewer in number, usually on strike or moving to other countries, thus reducing the accessibility to health care professionals. This can be attributed to the poor macro-economic conditions in addition to the poor working conditions many health care professionals have to contend with. Individuals also noted that brain drain was both internal and external, with health care professionals either leaving the country, or moving from working in the public sector to working in the private sector. A number of doctors have ended up opening their own private practices so as to earn extra income.

*"There is not enough staff available, there is only one nurse who attends to all patients in the local Rujeko clinic, and there are no ambulances available anymore for seriously ill people" – 32 year old male, Dzivarasekwa*

*"There now shortages of medicine and staff, staff no longer motivated to work and poor service delivery" – 54 year old female, Glen View*

*Everything has changed now, There used to be a lot of doctors in government hospitals but now there are very few" – 29 year old female, Kuwadzana*

A very small percentage of individuals (5.00%) felt there was an improvement in health care service delivery – especially with regard to access to Anti Retrovirals (ARVs) and support from NGOs.

*"HIV and AIDS issues are now getting good support from the public and the government" – 27 year old male, Dzivarasekwa*

*"NGOs have helped a lot of people with free drugs and food to improve people's diet" – 37 year old female, Kuwadzana*

Another concern for individuals, although a small percentage (3.16%) noted this, was issues regarding poor management of sewage burst, garbage disposal and water supply. These are basic environmental conditions that are now posing as health hazards for a majority of individuals in these three suburbs. Genberg (1992) stipulates that an economic crisis impacts on a state's ability to deliver public funded services, thereby impacting on the health environment. This leads to a difficulty in access to clean water, affects sanitary conditions and affects living conditions, which has not gone unobserved by the local population. These difficulties stem from the fact that investments in infrastructure in the economy are compromised during an economic crisis as a result of the decline in government expenditure (Genberg, 1992).

***"Now feel more exposed to health hazards from unattended sewage bursts and garbage" – 29 year old male, Dzivarasekwa***

***"We should have all the resources, need health for all and all for health, Sewage bursts need to be urgently managed, they are now not a surprise" – 35 year old male, Kuwadzana***

Overall there was a general acknowledgement that there has been a deterioration of health care service delivery as a result of the lack of availability of drugs, inadequate equipment for use in health care facilities, shortages of medical personnel actively working and lack of management of the environment. Furthermore concerns regarding bribery and ill-treatment have also fuelled a number of individuals' disbelief in health care services. A few individuals however were pleased with the work done by NGOs who have aided in providing drugs and food to those in need.

Individuals in the survey were also asked to provide any suggestions or comments they have in regard to health service delivery. This was important so as to improve the responsiveness of the current health care system to individuals needs. The results according to the general themes are presented below (Table 5.18).

**Table 5.18 Suggestion/Comments in regard to health service delivery**

| Suggestion/ Comment | Percentage (%) |
|---|---|
| Drugs should be made available (import/manufacture)/ make affordable | 27.64 |
| Doctors and nurses should be better remunerated/ provide better working environment/ recruit more | 21.25 |
| Government or council – Management of sewage bursts/ clearance of garbage/ water and electricity management | 14.90 |
| More money for health sector/ more facilities/ improve health care service standards/ Review health care service delivery and policies/ Prioritize health | 14.25 |
| Monitor health care professionals (corruption/ favouritism/ qualifications/ ill-treatment)/ need better treatment from nurses | 9.32 |
| Free care for priority groups (HIV/ elderly)/ Affordable services/ Government subsidy for services/ medical aid flexibility | 7.60 |
| Political views (or views outside health sector) – Change government/ increase cash availability/ Control inflation | 5.04 |

The various comments and suggestions point to a disgruntled majority, whereby plausible solutions need to be offered. The health care system in Zimbabwe needs to present viable solutions in order to maintain health care service delivery amidst the economic crisis. Comments ranged from those within the health sector to those that were political. Of great concern to many individuals was the availability and affordability of drugs (27.64%). Suggestions were present such as the importation of generic medicines and local manufacture in order to increase availability. These need to be made available at the local level or by importation, although as mentioned earlier there are issues with regard to foreign currency. But nonetheless a plausible solution with regard to the provision of drugs needs to be generated.

***"Need enough drugs in clinics so that patients do not have to go to pharmacies to buy medicines thus adding an extra expense on families that are not financially stable" – 46 year old male, Kuwadzana***

The second most cited suggestion was to improve the working environment and number of doctors and nurses (21.25%). Individuals in the country understood that the macro-economic environment has resulted in working professionals having extremely low salaries. There was concern that the underpayment of formal workers has led to issues of corruption, ill-treatment of patients, strikes and ultimately brain drain.

***"Doctors and nurses should be paid better so as to avoid strikes, Need to improve services in public hospitals especially in maternity wards where doctors and nurses are at times absent" – 32 year old male, Glen View***

*"Staff at public facilities should handle patients with care, and government should increase salaries of health care personnel so as to avoid strikes and patients unnecessarily dying due to no help" – 35 year old female, Glen View*

The environmental health hazards posed by the lack of garbage disposal and poor management of sewage bursts has also been of particular concern, as it has resulted in a number of individuals contracting water-borne diseases which could have been avoided in the case of adequate management. Adequate management of sewage bursts, garbage disposal and supply of water and electricity were another cited suggestion (14.90%). These problems have been faced on a nationwide scale, but it poses a higher risk of disease outbreak without adequate management, especially in crowded high density areas. Many of individuals were concerned about this, and felt that the government or council needed to intervene in this area.

*"Government should improve sewage management system and attend to water-logged areas to prevent water borne diseases, and provide clean tapped water to public" – 38 year old male, Kuwadzana*

*"Sewage bursts need to be attended to, life is becoming unbearably tough that people cannot visit hospitals, Drugs need to be made available in hospitals" – 49 year old female, Kuwadzana*

*"Clinics should be well equipped with electricity, water, drugs and doctors so that they can treat people" – 52 year old male, Glen View*

Approximately 14.25% of individuals felt there needed to be a review of the health care delivery system as a whole so as to understand priority areas, in addition to the need to increase the money available for the health sector so as to improve health service delivery.

*"Government should be more practical in dealing with the health delivery system" – 28 year old male, Glen View*

*"Government should allocate more to the health sector in order to improve the standards" – 25 year old male, Glen View*

Another key area of importance was that individuals felt that health care professionals needed to be monitored (9.32%), in regard to corruption, favouritism, qualifications and ill-treatment. Individuals complained that some health care professionals were accepting bribes in order to provide health care services. Some health care professionals were noted to show favouritism by offering drug treatments to their relatives, rather than providing the drugs to those in need. Other health care professionals were deemed to be inadequately qualified by the individuals

in the survey. Overall with this suggestion individuals desired better care from health care professionals.

***"Need to source medication and make it available to the people. Corruption also needs to stop at the local clinics, as staff continuously ask for bribes before they aid patients to compensate for underpayment" – 32 year old male, Dzivarasekwa***

***"Nurses are ill-treating patients, There are no ambulances, Nurses should not send away mothers who have just given birth" – 23 year old female, Glen View***

Access to health care services was important to individuals, hence some individuals (7.60%) deemed that there should be free health care services for certain groups such as those with HIV or the elderly. Furthermore was the need to improve the affordability of services so that everyone in need can be able to use them. Included in this suggestion type was also the need to improve access to government subsidy and medical aid. Given the hyperinflationary environment, a number of individuals felt that health care should also be made affordable, and even free for priority groups, who may be most in need of care but may be unable to afford it.

***"Free care should be given to the poor, the elderly and those with AIDS" – 53 year old female, Kuwadzana***

***"Medical aids should be easy to apply for and conditions should be flexible" – 39 year old male, Kuwadzana***

***"Minister of Health should review fees paid at public clinics, as they are too high" – 27 year old male, Kuwadzana***

Finally, political views that were outside the realm of the health sector where provided (5.04%), such as the need to change the government, control of inflation and increase cash availability. These views showed disgruntlement with the current government in place, whereby individuals blame the government for the poor macro-economic environment characterized by poor health care service delivery, hyperinflation and cash shortages that have made life for many individuals in Zimbabwe unbearable.

***"Money should be available from the bank 24 hours a day to cater for emergencies" – 26 year old female, Kuwadzana***

***"The health sector is being destroyed because of politics" – 33 year old male, Kuwadzana***

# CHAPTER SIX: DICUSSION AND RECOMMENDATIONS

## 6.1 Introduction

There are two sections of this chapter. The first is the discussion of the results in the previous chapter and the second part presents policy recommendations and scope for future research based on the study results.

## 6.2 Morbidity Profile

A small percentage of individuals (10.77%) in the study population experienced a reported episode of illness in the 4 weeks prior to the household survey. Other studies that have used a similar recall period observed a much higher morbidity rate in the range of 19.6%-56.8% (Ross & Vaughan, 1986; Kroeger, 1983b). In this study proxy-reporting was employed, whereby one individual responded for other household members, which may have resulted in under-reporting of some minor illnesses. Kroeger (1983b) has noted that proxy-reporting is a source error, but it still does reflect the true family attitudes towards the individual's problem. Furthermore an individual's perception and understanding of an illness is important (Sen, 2002). The illness patterns reflect reported illness, and may not correlate necessarily with the actual illness diagnosis by a medical expert. It is imperative to also note that reported illness and medical care use are usually prone to error (Cleary & Jette, 1984); however self reports are widely used in social research (Sen, 2002).



The spectrum of reported illnesses and health problems coincided with those of an urban population in a developing country (Harpham & Stephens, 1991). The commonly observed illnesses in urban vulnerable groups are infectious diseases - diarrhoea, malaria and acute respiratory infections (TB & pneumonia). These diseases can be attributed to the living conditions. Many individuals in the study population were exposed to major threats to their health and well-being, as some had to contend with crowded living conditions, poor sanitation and poor water supply, if any. This resulted in a high proportion of water-related illnesses such as diarrhoea being observed. Fever and other minor illnesses were commonly observed. Fever can be linked to other illnesses such as pneumonia, malaria and other minor

infections. Chronic illnesses such as diabetes and hypertension were observed to a smaller extent, which can be attributed to the fact that such illnesses tend to afflict older individuals. Antenatal care needs and mental illnesses were hardly observed, which may have been sensitive items therefore they may have been under-reported.

## 6.3 Health Service Utilization and its Correlates

### 6.3.1 Patterns of Health Care Use

The study revealed that the majority of individuals sought care at a public facility (Table 5.4). There was a single primary health care facility available in each of the suburbs, thus ensuring access to a health care provider. Private care was less commonly used, which may be attributed to the high cost of services at these facilities, which presents as a barrier to their use. Other care was an infrequently used form of care. This group was mainly comprised of individuals who sought care at a pharmacy. Ross & Vaughan (1986) have observed that respondents tend to hesitate or forget care that has been received from alternative sources such as traditional healers, homeopaths and pharmacists. No care was a surprisingly common route of action in the event of an illness, over a third of the sample did not seek care in the event of an illness. From the respondents' point of view this was largely attributed to the high expense of seeking care, the availability of medicines at home and having a mild illness (Table 5.5). The macro-economic conditions have made seeking care extremely expensive and out of the reach of many, thus restricting individual's ability to seek care.



Approximately 58% of those who did not seek care did not do so because it was deemed to be too expensive. Work by the World Bank (1999) revealed that 40% of the urban poor in Zimbabwe cited 'too expensive' as their main reason for not seeking care. The finding in this study therefore highlights the plight of many individuals as the economic decline has progressed. This therefore has posed as a barrier in the use of health care services. Furthermore a large proportion of individuals also cited that they had medicine at home or they felt they were not sick enough to prompt a visit to a health care provider. Individuals may have an altered perception of the severity or gravity of their illness due to the economic hardship that many households are facing. What was concerning in the analysis of barriers to use of health care services was that, the subsequent three top reasons were related to the

supply side of health care services. A number of individuals felt that there would be no medicines available in the event that they did go to a health care facility, or had a previous bad experience or they presumed that the service would be bad if they did seek care. These key issues need to be addressed as such negative views are prompting individuals not to seek care. This is further supported by the qualitative results, which are discussed further on.

The hypothetical situation (Table 5.16) revealed very interesting results. The common choices of care were public and private care. The former was largely attributed to the affordability and close proximity of such services, whilst the latter was largely attributed to the availability of drugs and the quality of services offered, which are common associations with these types of care. Overall the two most important points from the respondents' view in the choice of care were affordability and quality of service offered. Many individuals may have felt the need to trade off one or other, i.e. seek affordable care rather than quality service or vice versa. This can aid in explaining the large proportion of individuals who flocked to the use public facilities that were deemed more affordable, but offered lower quality services, whilst a lower proportion employed the use of private care that offered higher quality services but were regarded unaffordable to many.

The influence of various factors on the use of health care services is discussed below, starting with demographic factors.



### 6.3.2 Demographic Factors, Social structure, Beliefs and their Effect on Health Service Use

Starting with the demographic variable, gender, differences were observed between the users and non-users of health care services, whereby females were found to use health care services more than males. This was contrary to findings in many previous studies (Shaikh & Hatcher, 2004; Baris et al., 2000; Buor, 2004; Field & Briggs, 2001). The finding in this study can be attributed to the fact that education levels were high for both genders, where the majority of individuals had attained a secondary level education or better (Table 5.2). Lawson (2004) and Buor (2004) both observed that an increase in education levels for females was associated

with an increase in demand for and use of health care services. This was further supported by the multinomial regression analysis results for individuals who did not seek care (Table 5.14), as it was found that females were less likely to not seek care. The use of health care services by females is strongly encouraged given that they have higher health care needs than their male counterparts. The multinomial regression results for private care (Table 5.12) revealed that individuals from female headed households were more likely to seek private care, which can be attributed to the perceptions of high quality services available at private facilities.

The education level of the household head was not found to be a statistically significant contributor to the use of health care services. Employment status revealed a very interesting finding. For private care it was observed that individuals with an informally employed or an unemployed household head were more likely to use private facilities as compared to individuals with a formally employed household head. The incomes of those informally employed are able to adjust quicker to inflation than those who are formally employed. The unemployed may also have had informal sources of income, thus enabling them to seek private care.

Surprisingly, socio-economic status was not found to have a statistically significant relationship with health service use in the regression analyses. This signifies that the economic conditions in the country are so bad, that there are no key differences between those of a higher or lower socio-economic status. Findings from the bivariate analysis results also show few differences across the socio-economic quintiles (Figure 5.2). The analysis revealed that individuals in the 5$^{th}$ quintile were the highest proportion of individuals who sought private care. Work by Bradshaw & Mbatia (2003) has shown that individuals with a high socio-economic status tend to use health care services more, they have increased access to private care and they have the ability to pay for health insurance. This therefore indicates that those of higher socio-economic status are at a better advantage when they use formal health care services. The bivariate analysis also revealed that the frequency of lower socio-economic groups (1$^{st}$ – 3$^{rd}$ quintiles) was concentrated around 'no care' and 'other care' (Figure 5.2). Various studies have shown that those of low socio-economic status tend to

resort to not seeking care at all or they employ the use of alternative forms of care such as traditional healers when ill (Shaikh & Hatcher, 2004; Develey et al., 1996; Mekonnen & Mekonnen, 2002; Uzochukwu & Onwujekwe, 2004).

The results from the logit model (Table 5.11) revealed that than an increase in household size enhanced the likelihood of seeking care. This was further supported by the multinomial regression analysis for no care (Table 5.14), which indicated that small sized households were more likely to not seek care. Illness severity was also shown to contribute to seeking 'other care' – i.e. care at a pharmacy, with individuals with severe illnesses more likely to seek care at a pharmacy. These findings regarding household size were contrary to results from Pakistan, whereby an increase in household size was linked to poor utilization (Shaikh & Hatcher, 2004). The author attributed this to the influence other household members had and the lower availability of finances to cater for everyone in the family for large sized households. However, in the Zimbabwean context, large sized households were at an advantage as they were able to pool finances together. During the study and the preceding months, there were cash shortages; therefore individuals residing in large sized household had greater access to the limited cash available. Given that health care facilities operated on a cash upfront policy, being in a large sized household enabled funds to be pooled together, thus promoting the use of health care services.

Beliefs and attitudes played an important role in the use of health care services. Generally, there were negative attitudes and beliefs regarding health care services. Negative attitudes regarding health care services lower the perceived need for care, thereby reducing the use of health care services (Baris et al., 2000). A high proportion of individuals did not seek care when they fell ill, hence this can also be partially attributed to the negative attitudes and beliefs individuals had of health care services which lowered the perceived need for care thus resulting in such a high rate of individuals not seeking care. Information from Table 5.5 supported this as it revealed that users deterred from using health care facilities for provider related reasons such as they felt that the service would be bad, they had a previous bad experience, or they felt there would be no medicines available at the health care facilities.

The apostolic sect religion and marital status of the household head were not found to have a statistically significant relationship with health service use in any of the regression analyses.

### 6.3.3 Enabling Factors and Health Care Use

Income was unable to be accurately determined as mentioned previously; therefore its influence on the use of health care services could not be determined. Focusing on two enabling factors, medical aid (health insurance) and government subsidy, it was found that ownership was generally low (Table 5.8). Over half of the individuals with medical aid sought care at private facilities, thereby indicating that medical aid ownership may have facilitated the use of private health care services. This was consistent with findings in other studies, whereby health insurance has been shown to encourage the use of health care services (Baris et al., 2000). Furthermore, the insured have better access to and ease of use of health care services (Woods et al., 2003), especially private care (Bradshaw & Mbatia, 2003).

Place of residence denoted by suburb type was another variable that was important in understanding health service use. It has generally been observed that individuals residing in urban areas are at an advantage to use health care services due to the ease of access and high income earning potential (Buor, 2004). Looking at the utilization of health care services by suburb (Table 5.4), key differences were observed. The use of public facilities was generally high but individuals in Kuwadzana and Dzivarasekwa used public services more than individuals in Glen View. This can be attributed to the generally low socio-economic profile of individuals in these two areas (Table 5.2). Private facilities were mainly used by individuals from Glen View, which can be attributed to fact that Glen View had the highest proportion of individuals in the upper quintile. Coinciding with information divulged in the bivariate analysis (Figure 5.2), whereby those in the 5$^{th}$ quintile made up the highest proportion of individuals who sought private care. As previously mentioned, high socio-economic status has been shown to contribute to the increased use of private care (Bradshaw & Mbatia, 2003) due to the increase of accessibility to health insurance. Individuals in Glen View were also found to use other forms of care more than the other two suburbs, which can be attributed to similar reasoning as the finding for private facilities. Not seeking care was generally high, although individuals in Dzivarasekwa were found to be the highest non-users

of health care services. This was attributed to the fact that a large proportion of individuals from this area were concentrated in the lower socio-economic groups and high unemployment levels were observed. Furthermore, work by Develey et al. (1996) has shown that individuals with a low socio-economic status tend to not seek care.

### 6.3.4 Provider Characteristics and Health Care Use

The affordability of health care services is important as it encourages the use of such services. Unaffordable health care services were observed to be a deterrent in the use of health care services (Table 5.5), which was in line with findings from other studies (Bradshaw & Mbatia, 2003; Develey et al., 1996; Lawson, 2004). The cost of health care services was generally high at private facilities (Figure 5.3), for particular illness groups such as chronic illnesses, dental care needs and TB (Figure 5.4) and for severe illnesses. Travel times to health care facilities were generally short (Figure 5.5), thereby signifying the close proximity of health care services, whether public, private or other forms of care. In each of the suburbs, there was one primary health care clinic available, and a few private clinics and pharmacies available, within a short distance, therefore physical access to health care facilities was not a major issue for most individuals. Services located within a close proximity to an individual, encourage the use (Bradshaw, 2003; Lawson, 2004; Uzochukwu & Onwujekwe, 2004; Stekelenberg, 2004). Since most individuals were within such a close proximity to health care services, walking was the frequently used form of transport.

In the process of seeking care, the perceived quality of services rendered was generally high (Table 5.9), which therefore encouraged individuals to use health care services. The availability of drugs was found to vary across the different facilities, whereby it was noted that individuals who sought care at public health care facilities found drugs there available much less than those who sought either private or other forms of care. Issues such as the availability of drugs link to the perceived quality of care. The reported stock levels of drugs were similar to a report by Tikiwa (2008), who found that this ranged from 30-85% at public and private facilities.

The majority of individuals were satisfied with health care services rendered, especially at private facilities, and much less at public facilities. This may be attributed to the fact that a number of individuals who sought care at public facilities were usually unable to find drugs available there, thus individuals had to end up purchasing drugs elsewhere thus increasing the financial burden upon them. At private facilities, more individuals felt that drugs were more readily available which may have tied into the level of satisfaction with the health care services. These findings are similar to the Nigerian study where perceptions on quality and the availability of drugs affected health care use (Uzochukwu & Onwujekwe, 2004). Other forms of care, largely at a pharmacy, were sought by many individuals who were not satisfied with the health care services rendered (Table 5.10), which can be attributed to issues of lack of availability of drugs. Determining the quality of care of services rendered is not a particularly simple task, as it is a function of education levels and income, hence individuals needed to adequate knowledge about health care services to determine what this entails and where to access it, furthermore one needed to be financially empowered to be able to access high quality services (Buor, 2004).



### 6.3.5 Illness Characteristics and Health Care Use

The use of various health care services by illness type revealed very interesting results (Table 5.6). It was concerning that the common route of action for many suffering from an illness or other health care need was not seeking care at all if they did not seek care at a public facility. The majority of those suffering from fever/minor illnesses, diarrhoea, dental care needs, and mental illness did not seek care at all. This is concerning as such health needs prompt for a visit to a health care provider. The majority of those suffering from malaria, TB, pneumonia, body injury, antenatal care needs and other illnesses sought care at a public facility. Illnesses such as malaria and TB are more affordable to treat at a public facility rather than at a private facility, thus can attribute in explaining the high proportion of individuals resorting to using public facilities. Previous studies have shown that individuals with common illnesses such as malaria tend to use public health care services (Bradshaw & Mbatia, 2003). Furthermore respiratory illnesses such as TB and pneumonia have been found to encourage the use of modern health care services (Develey et al., 1996).

Illness severity was found to be associated with the use of health care services in all the regression analyses results except for private care. In the logit model, the results signified that an increase in illnesses severity enhanced the likelihood of one seeking care. This finding was in line with findings in many previous studies (Shaikh & Hatcher, 2004; Develey et al., 1996; Lawson, 2004; Winston & Patel, 1995; Stekelenberg, 2004; Woods et al., 2003). Furthermore the results from the multinomial regression analyses showed that individuals suffering from severe illnesses were more likely to seek other care; and those with mild illnesses were more likely to not seek care as compared to public care. As with many previous studies, an increase in illness severity has been shown to encourage the use of formal care (Shaikh & Hatcher, 2004; Develey et al., 2004; Lawson, 2004; Winston & Patel, 1995, Stekelenberg, 2004; Woods et al., 2003). The descriptive statistics further supported these findings (Table 5.7), whereby the majority of individuals suffering from a mild illness did not seek care at all, but once the illness became more severe, individuals resorted to seeking some sort of care. Individuals should not only seek care once an illness becomes severe, but individuals should be encouraged to seek care at any stage of an illness.



## 6.4 Macroeconomic Environment and effect on Health Care Seeking Behaviour

The economic crisis in Zimbabwe has adversely affected all sectors in the country. Of importance in this study is the effect it has on the health sector. Given the increase in morbidity and mortality rates, in addition to the decrease in life expectancy of the average Zimbabwean, the impact of the economic crisis on health indicators is evident. The negative impact of the economic crisis on health service delivery was observed. Researchers, such as Clemens & Moss (2005) have linked the economic difficulties to specific government decisions – e.g. land reform, poor macroeconomic management (evident by large government deficits), money creation and a lack of sensible economic policy. This has resulted in an economic environment whereby there is now little foreign aid, little foreign investment and a continual surge of the economically active to more stable neighbouring countries.

The evaluation of the economic crisis was based on the respondents' view. It was important to note that even though individuals were asked about the economic climate 6 years ago (2002), it was a memorable time to many and regarded as the period before the economic

crisis ensued. Ross & Vaughan (1986) stipulate that using recall periods longer than a year is useful for very prominent events. Since it was important to understand the impact of the economic crisis on health care from the individual perspective, it was imperative that this was probed into.

Starting with the use of health care services, a sharp decline of almost 30% was observed in the reported use of public care between 2002 and 2008. The reported use of private facilities has decreased by much less (5%) in the same period. The proportion of individuals not seeking care when ill has doubled in the same period. A large proportion of individuals did not seek care in 2008 as compared to 2002. Even though these percentages do not represent actual use for 2002, what can be noted is that there has been a sharp decline in the use of public services and conversely an increase in the non-use of health care services since 2002. Furthermore a number of individuals have resorted to seeking other forms of care, mainly at pharmacies where drugs are available but not always affordable.

Focusing on the profile of respondents and the responsiveness of the health care system from 2002 to 2008 (Figure 5.6), an interesting array of results were obtained. In moving from the year 2002 to 2008, there was a decrease in medical aid ownership and government subsidy. This coincides with findings in Korea during its economic crisis (Yang et al., 2001), which attributed this to the fact that the crisis caused a decrease in income thus contributing to low wages and a rise in unemployment, consequently leading to a decrease in spending for health insurance payments. Unemployment levels were observed to be high across the three suburbs (Table 5.2) and on a nationwide scale. Medical aid societies generally covered those who were formally employed and not the unemployed, therefore a rise in unemployment levels over the years has caused an increase in the proportion of individuals without medical aid. In the Zimbabwean scenario, low wages and cash shortages faced on a nationwide level, made payments for services difficult, thus explaining the decrease in medical aid coverage. The decrease in government subsidy can be attributed to the declining ability for the government to deliver publicly funded services.

Focusing on the payment for health care services revealed that individuals have observed that the cost of health care services has sky-rocketed in moving from 2002 and 2008, and the costs of services are now regarded to be too high (Figure 5.6). This was further supported by some of the qualitative responses which revealed that the costs of care were considered to be very high at public facilities. The hyperinflationary environment in Zimbabwe has made the costs of health care services out of the reach for many. Authors Genberg (1992) and Yang et al. (2001) have observed that an economic crisis results in price increases, thereby escalating costs of health care services and pharmaceutical products. Thus inevitably, the progression of the economic crisis over a long period of time has consequently led to the unprecedented increase in the cost of health care goods and services.

One of the key issues observed during the study was that the perceived availability of drugs has decreased over the years from 2002 to 2008 (Figure 5.6), with similar concerns raised by a third of individuals in the qualitative analysis (Figure 5.17). The limited availability of drugs can be attributed to the decrease in government expenditure over the years and the high cost of pharmaceuticals which has limited both the local manufacture and importation of drugs. Parliament has acknowledged that sourcing drugs has been challenging over the recent years due to the lack of foreign currency reserves which have limited the manufacture and importation of pharmaceuticals (CWGH, 2007). The quality of services and satisfaction with health care services has generally maintained a high level, although over the years, satisfaction has decreased by 20%. This can be attributed to the decrease in public sector delivery which is difficult to maintain in an economic crisis (Yang et al., 2001).

There has been a decreased access to ambulances in moving from 2002 to 2008 and individuals have now increased the use of private cars and taxis to get to health care facilities. The former can be attributed to the commonly observed fuel shortages in the country. A study by Thomson (2005) stipulated that ambulances faced problems in regard to 1) distances – there is inadequate funding to allow the number of ambulances to cover peri-urban areas in an adequate response times especially with varying distances, 2) personnel – many of the small urban hospitals have no dedicated accident/emergency department, but even if there is, there is usually no/ inexperienced personnel available. The latter can be attributed to an

increase in modernization thus resulting in increased access to modern transport means such as private cars and taxis.

## 6.5 Conclusion and Policy Recommendations

Zimbabwe has been suffering an unprecedented economic crisis for over 6 years, which has had severe repercussions from the health sector. Authors Clemens & Moss (2005), state that "Zimbabwe's economic crisis is so deep that it has set the country back by more than half a century". It is difficult to make sound policy recommendations especially with the continuous economic decline that has not yet reached a point of stagnation. Recent figures at the end of May 2008, put inflation at over 1,000,000% (Shaw, 2008). The management of the economic crisis is however outside the realm of the health sector, and key government initiatives need to be taken to control inflation. Some economists hold the view that in order to end hyperinflation, there needs to be both monetary reform and fiscal reform (Salemi, 2007), which entails halting money creation and reducing budgetary deficits. Brazilian economist, Dr Megale has expressed similarity of the Zimbabwean situation to that of Brazil over 20 years ago and he offers similar views in order to control hyperinflation, furthermore stating that "political pressures have been the main cause of previous failures" (Megale, 2007). The manner which the economic crisis continues to affect the quality of life of many Zimbabweans is unfortunate. Of particular concern in this study are the health sector and the impact the crisis has had on health and health care service delivery.



The progression of the crisis has reversed the remarkable improvements in health indicators that were made in the late 1980s. Pertinent to this study and of key policy importance is the sharp drop in the use of public services as a result of the crisis. This scenario is similar to that of Indonesia in the mid-90s (Saadah et al., 2000) and some of the Latin American countries such as Brazil and Costa Rica in the late 1980s. From the Costa Rican experience, Morgan (1987) states that "in times of economic recession and increased dependency, the health policies are shaped more by foreign political priorities and external financial assistance rather than by government's commitment to health care". This reveals that financial assistance is required at this time of an economic crisis. It is critical to increase the availability of foreign aid so as to be able to combat the rising costs of imports that is exacerbated by the

hyperinflationary environment. Furthermore, Costa Rica adopted the slogan: "Health without wealth", which acknowledges the fact that the country's resources were no longer sufficient to maintain the high health standards set prior to the economic crisis (Morgan, 1987). In order to provide adequate care, the injection of foreign aid proved critical behind Costa Rica's success. A similar approach can yield success for the Zimbabwean health sector. In essence, global public goods, such as global funds should be supported more substantially (Labonte, 2004), thus donor funding for health care should be distributed more fairly, especially to developing countries in need of financial support such as Zimbabwe. Foreign aid can allow purchasing of essential drugs and basic medical supplies. This is a time where individuals need health care services the most as the health environment poses a risk to many as shown by the poor sanitation conditions and the low wages that limit the use of health care services. The potential increase in morbidity and fall in real incomes as a result of the crisis indicates that the public sector has an important role to play in order to maintain the health status of individuals. In the interim, a stronger mix between local NGO agencies running mission facilities and the public sector should be encouraged, which can enable both groups to gain from such an opportunity. The mission facilities can get use of public facilities, and the public facilities can gain access to basic medicines and supplies that are supplied to mission facilities by foreign agencies.

Defining and developing appropriate policies also requires uncovering the numerous underlying issues that have caused a drop in the use of public services, and a rise in the non-use of health care services in the event of an illness. From the study results this can be attributed to the lack of affordability of health care goods and services, lack of availability of drugs and negative attitudes towards health care services in the country. The hyperinflationary environment has made costs of goods and services unpredictable on a day-to-day basis, thus resulting in many individuals unable to afford care, even at public facilities. Furthermore, health infrastructure has been extremely expensive to maintain in the recent years, especially during the economic crisis, due to the decline in government expenditure. The role of the government in public service delivery is important, as with previous years, government has managed to offer health care services at affordable and subsidized costs thus enabling access to use of health care services. The limited ability for public service delivery

highlights the need for global financial support, in order to improve health care service delivery.

Focusing on the results from the regression analyses, equity in the use and access to health care services is important. The contribution of various variables to the use of health care services was highlighted. It was important that females and individuals from female headed households used health care services more especially private care. Females should have costs subsidized more so as to continually encourage the use of health care services. Larger sized households have been shown to be at an advantage when it comes to the use of health care services. Costs for health care services need to be subsidized and individuals need to pay for services according to their ability to pay. The cash shortages during the study and in the preceding months limited smaller households in their ability to pay. Financial barriers limit the use of health care services hence this needs to be addressed. Those individuals with household heads that were informally employed were at an advantage in the use of health care services, as their incomes were better able to adjust to inflation. Government needs to come up with pragmatic approaches to deal with employment, wages and the chronic cash shortages that have plagued the country especially in the current hyperinflationary environment that has resulted in the rapid increase in the price of commodities at a rate that that is not in line with formal sector wages. Illness severity proved to be a strong indicator of health care use across the various choices of care besides private care. Those with more severe illnesses were more likely to seek care at a pharmacy and less likely not to seek care at all. It is important that individuals, at any stage of an illness, should feel empowered to use of health care services, especially those suffering from a severe illness. Health is a human right; thereby making health care a human right too, hence all individuals with the same need for care should be entitled to access and use health care services.

Medical aid societies can play a vital role by increasing the flexibility of joining a medical aid society given the high unemployment levels observed in the country, by incorporating informal sector workers who can be considered to be self employed. Health insurance can aid in increasing the access to and use of health care services. Another key issue highlighted in the study were shortages of drugs and medical personnel. As previously mentioned, the

availability of drugs can be increased through importation, backed by support from global funding and by strengthening of the local pharmaceutical manufacturing industry. The retention of medical personnel, who are usually on strike or are continually leaving the country as a result of poor wages and scarcity of basic medical supplies which limit their ability to deliver adequate care, needs to be encouraged. Therefore doctors need to be better remunerated in order to provide a better working environment that encourages their recruitment and retention. This can be performed by ensuring that wages are revised on a regular basis in order to keep abreast with basic expenses such as food and transport, especially in this hyperinflationary environment that has sky-rocketed the costs of basic goods and services.

The increase in poverty has also contributed to the deterioration of health status of many individuals. Another very concerning and important issue raised in the study, which has contributed to a poor health environment and consequently the deterioration in health status of many, is the lack of adequate management of garbage and sewage disposal. Government needs to address this health concern so as to reduce the health hazards individuals are exposed to, by ensuring that refuse is collected on a regular basis and basic sanitary conditions are set up especially in high density areas.

This study has raised several key concerns that urgently need to be addressed in order to improve the health environment and health service delivery, in light of the economic crisis. These included the general high cost of health care goods and services, the lack of availability of drugs and medical personnel, and an unhealthier environment brought about by the lack of adequate management of garbage and sewage disposal.

### 6.6 Scope for future research

Health care is an important characteristic in any society. Future studies should focus on monitoring the effect the economic crisis has on health outcomes especially health care utilization, so as to continuously come up with means to facilitate better health care in a climate where many Zimbabweans have to deal with inadequate health care. Further research

will aid in providing valuable policy contributions. A further extension to the study would be to understand utilization from the provider perspective, therefore the household survey data in this study can be complimented by data generated from the provider (supply) perspective.

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# APPENDICES

## APPENDIX A : QUESTIONNAIRE

**DATA COLLECTION INSTRUMENT**
**PATTERNS AND DETERMINANTS OF UTILIZATION OF HEALTH CARE SERVICES**
**UNIVERSITY OF CAPE TOWN**
**HEALTH ECONOMICS UNIT**

INTERVIEWER ID:_____ FORM #:

NAME OF INTERVIEWER:_____ DATE: ___ / ___ / ___

SUBURB:_____ ADDRESS:_____

TIME BEGIN:_____

**INTRODUCTION**

[**Interviewer** – read out the following]

Greetings, my name is_____. Before we proceed, which language do you prefer to speak?

(**INTERVIEWER** - Change to preferred language, Tick preference) English [ ] Shona [ ]

I am conducting survey about the use of health care services and health care seeking behaviour. This is on the behalf of a Master's student at the University of Cape Town in South Africa. We are interested in understanding what you do when you fall sick. This research will help inform the government on the accessibility of health care services in your area and other problems you may face when you want to use them. We are planning to interview many different households in Glen View, Dzivarasekwa and Kuwadzana. Any information you provide in this interview shall be kept completely confidential. Your participation in this survey is voluntary and you can choose not to answer any particular question. Please be aware that you can also withdraw from the study even after agreeing to participate, and you and your household will not face any consequences. At this time, do you want to ask me anything about the survey? [**INTERVIEWER** – (wait for a response)]

Would you like to participate in this survey?

No = 1 Yes = 2

Are you the household head?

No = 1 Yes= 2

[**NB** – Preferably the household head – if the household head is not around, respondent must be 18 years old; **IF NO ONE IN THE HOUSEHOLD IS ABOVE 18, THEN THERE IS NO ELIGIBLE RESPONDENT**]

[**INTERVIEWER** – GO TO CONSENT FORM]

DATE OF EDITING:_____

DATE 1ST ENTRY_____ DATE 2ND ENTRY:_____

SIGNATURE OF PRINCIPAL INVESTIGATOR:_____

**CONSENT FORM (English)**

**TOPIC: PATTERNS AND DETERMINANTS OF UTILIZATION OF HEALTH CARE SERVICES**

**Principal Investigator:**
**Nyasha Bandason (MPH student)**
**University of Cape Town**
**Tel: +27735076413**
**e-mail: bndnya002@uct.ac.za**

Dear Participant,

You have been randomly selected to be part of this survey and we would, therefore, like to interview you. The information that you provide will only be used to understand the main things that you do when you or any member of your household falls sick and how you use health care services.

The interview will take about 40 minutes. We will ask you questions about:

- Some details about you and the members of your household
- Household finances and the goods that you own
- Any health problems you may have experienced and the care you may have received
- Health care centers that you use and how well these have responded to your needs

The information you provide is totally **confidential** and will not be disclosed to anyone. It will only be used for research purposes. Your participation is **voluntary** and you can withdraw from the survey even after you have agreed to participate. You are free to refuse to answer any question that is asked in the questionnaire or stop the interview at any time. There will be no consequences should you choose to stop the interview.

Signing this consent indicates that you understand what has been explained to you and you are willing to participate in this survey.

Who was the Informed Consent Form read by? Read by Respondent [ ] Read by Interviewer [ ]

Was the Informed Consent Form Agreed to and Signed / but Not Signed or Refused?

Agreed and Signed [ ] Agreed but Not Signed [ ] Refused [ ]

Respondent Name:_____ Respondent Signature:_____

Interviewer Name:_____ Interviewer Signature:_____

Date: ___ / ___ / ___

**(Introduction - Shona)**
**DATA COLLECTION INSTRUMENT**
**PATTERNS AND DETERMINANTS OF UTILIZATION OF HEALTH CARE SERVICES**
**UNIVERSITY OF CAPE TOWN**
**HEALTH ECONOMICS UNIT**

NHAMBA YEMUBVUNZI:_____ NGWARO #:

ZITA REMUBVUNZI:_____ ZUVA: ___ / ___ / ___

NZVIMBO YOKUGARA:_____ KERO:_____

NGUVA YOKUTANGA:_____

**MAVAMBO**

[***Mubvunzi*** *– Verenga zvinotevera*]

Rukwaziso, Zita rangu ndinonzi_____. Ndisati ndaenda pamberi, munoda mutauro upi?

(**MUBVUNZI** – Chinga kune mutauro yaanoda) Mutauro: English [ ]
Shona [ ]

Ndirikuita chirongwa chemashandiro evanobatsira munezveutano uye nematsvagiro erubatsiro panenyaya dzoutano. Izvi ndirikumiririra mudzidzi wedanha re(master's) paUniversity yeCape Town KuSouth Africa. Tine chido chekuziva zvamunoita kana muchitsvaga rubatsiro rwekurapwa. Chirongwa ichi chichabetsera kuti Hurumende iwane ruzivo nezvemashandisirwo anoita nzvimbo dzinobatsira nezveutano munzvimbo menyu uye mamwe matambudziko amunosangana nawo kana muchida rubatsiro kunzvimbo idzi. Tiri kutarisira kubvunza vagari vakasiyana-siyana vemunzvimbo dzinoti Glen View, Dzivarasekwa neKuwadzana. Pfungwa dzamuchatipa muongororo iyi dzichachengetedzwa zvakavanzika. Kupinda kwenyu muchirongwa hakumanikidzwi uye munogona kusarudza kusapindura imwe mibvunzo. Munokwanisa kubuda muchirongwa ichi, uyezve, hapana chinooitika kunemi kana mhuri yenyu. Panguva ino, munemubvunzo here maererano nechirongwa? [**MUBVUNZI** – *mirira mhinduro]*

Munoda kupinda muchirongwa here?

Kwete = 1 Hongu = 2

Ndimi mukuru wemba here?

Kwete = 1 Hongu= 2

[**NB** – Tinotarisira mukuru wemhuri – Kana mukuru wemhuri asipo, achapindura mibvunzo anofanira kuva nemakore anodarika guminemasere (18 yrs) ; **KANA PASINA ANE MAKORE ANODARIKA GUMINEMASERE(18YRS) MUMHURI KUTI APINDURE MIBVUNZO , HAPANA AKAFANIRA KUPINDURA]**

[**MUBVUNZI** – ENDAI KUCONSENT FORM]

DATE OF EDITING:_____

DATE 1ST ENTRY:_____ DATE 2ND ENTRY:_____

SIGNATURE OF PRINCIPAL INVESTIGATOR: _____

**CONSENT FORM (Shona)**

**TOPIC: PATTERNS AND DETERMINANTS OF UTILIZATION OF HEALTH CARE SERVICES**

**Principal Investigator:**
**Nyasha Bandason (MPH student)**
**University of Cape Town**
**Tel: +27735076413**
**e-mail: bndnya002@uct.ac.za**

Kune munhu apinda muchirongwa,

Masarudzwa kuti mupinde muchirongwa zvino tinokumbira kuti tikubvunzei mibvunzo. Pfungwa dzamuchatipa dzichashandisa kuti tizive zvamunoita kana imi uye umwe wemhuri yenyu arwara uyezve kushandisa kwamunoita nzvimbo dzinopa rubatsiro rwezveutano.

Mibvunzo ichatora maminitsi anosvika makumi mana (40mins). Tichakubvunzai nezve:

- Maererano nemi uye vamwe vagari vemumba menyu?
- Mamiriro ehupfumi hwenyu uye midziyo yamuinayo
- Urwere hwamungadai makasangana nahwo, uye rubatsiro rwamungadai makawana
- Nzvimbo dzInopa rubatsiro rwezveutano dzamakashandisa uye kana makawana rubatsiro rwakakwana kune Dambudziko renyu.

Pfungwa dzamuchatipa dzichachengetedzwa zvakavanzika uye hadziratidzwi kune umwewo munhu. Dzichashandiswa muongororo iyi chete. Kupinda kwenyu muchirongwa kuripachena uye munokwanisa kubuda muchirongwa chero mambosarudza kupinda. Makasununguka kusapindura mibvunzo iri mugwaro rino kana kurega kupindura mibvunzo nguva yamunengemada. Munokwanisa kubuda muchirongwa ichi, uyezve, hapana chinooitika kunemi kana mhuri yenyu.

Runyoro rwenyu runoratidza kuti manzwisisa zvatsanangurwa kwamuri uye mabvuma kupinda muchirongwa.

Ndiani averenga gwaro? Mupinduri [ ] Mubvunzi [ ]

Gwaro resunga wirirano rabvumiranwa rikaiswa runyoro/harina kuiswa runyoro uye kubvumiranwa?

Bvumirana nerunyoro [ ] Bvumirano pasina runyoro [ ] Kuramba [ ]

Zita remupinduri:_____ Runyoro rwemupinduri:_____

Zita remubvunzi:_____ Runyoro rwemubvunzi:_____

Zuva: ___ / ___ / ___

## HOUSEHOLD SCHEDULE (English/Shona)

[**INTERVIEWER** - We would like to ask you some information about the people who live in your household]

[**MUBVUNZI** – Tinoda kuzivazve maererano nevanhu vamunogara navo mumba menyu]

| Line No. | Residents | Relationship to Household Head | Gender | Age | Marital Status | Education | House-hold Size |
|---|---|---|---|---|---|---|---|
| | **Please give the first names of every one who lives in your household. [MAKE A COPY OF NAMES ON NEXT PAGE UNDER RESIDENTS] [AFTER LISTING NAMES, proceed to question 2 -7. BE SURE THAT LISTING IS COMPLETE.]** ***Tipeiwo mazita ekutanga evanhu vose vanogara pamba penyu.*** | **What is the relationship of [NAME] to household head? SEE CODES ON THE SIDE** ***Mune ukama hupi nemukuru wemba?*** | **Is [NAME] male or female?** ***Muri mumhukadzi kana munhurume here?*** | **How old is [NAME]** ***Mune makore mangani okuberekwai?*** **[IN YEARS]** | **IF AGE 15 OR OLDER What is [NAME'S] marital status?** ***Makamira sei panya dzewanano?*** | **What is the highest level of school [NAME] has attended?** **IF 03 – 06, How many years have they COMPLETED?** ***Nderipi danho repamusoro redzidzo ramakasvika?*** | **ENTER TOTAL BELOW** |
| Q.No. | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| (1) | | | M 1 F 2 | | | LEVEL YEARS | |
| (2) | | | M 1 F 2 | | | | |
| (3) | | | M 1 F 2 | | | | |
| (4) | | | M 1 F 2 | | | | |
| (5) | | | M 1 F 2 | | | | |
| (6) | | | M 1 F 2 | | | | |
| (7) | | | M 1 F 2 | | | | |
| (8) | | | M 1 F 2 | | | | |

**CODES**

**Q2. RELATIONSHIP TO HEAD OF HOUSEHOLD:**
01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = NIECE/NEPHEW BY BLOOD
10 = NIECE/NEPHEW BY MARRIAGE
11 = OTHER RELATIVE
12 = ADOPTED/FOSTER /STEPCHILD
13 = NOT RELATED
99 = DON'T KNOW

**Q5. MARITAL STATUS:**
01 = MARRIED
02 = LIVING WITH PARTNER
03 = DIVORCED
04 = SEPARATED
05 = WIDOWED
06 = NEVER MARRIED/NEVER LIVED WITH PARTNER
99 = DON'T KNOW

**Q6. EDUCATION:**
01 = NO FORMAL SCHOOL
02 = LESS THAN PRIMARY SCHOOL
03 = PRIMARY SCHOOL
04 = SECONDARY SCHOOL
05 = UNDERGRADUATE
06 = POSTGRADUATE
99 = DON'T KNOW

[**INTERVIEWER** – You have said that [REPEAT NAME LISTING] are living here- is this correct?] **Mataura kuti [Dzokorora Mazita] vanogara pano- ndizvo here? [If not make corrections]**

## SOCIO-ECONOMIC PROFILE (1)

[**INTERVIEWER** – We would like to find out some information about where you stay]

[**MUBVUNZI** – Tinoda kuva neruzivo rwekwamunogara]

(8) What is your **MAIN** source of water for your household? ENTER CODE

*(Ndekupi kwamunowana mvura yemumba menyu?)*

PIPED (INTO DWELLING) = 11
PIPED (INTO TAP IN YARD/PLOT) = 12
PUBLIC TAP = 13
TUBE WELL OR BOREHOLE = 21
PROTECTED DUG WELL = 31
UNPROTECTED DUG WELL = 32
RAINWATER = 41
TANKER TRUCK = 51
LAKE/POND/STREAM = 61
BOTTLED WATER = 71
OTHER (Please Specify) _____ = 76
DON'T KNOW = 99

(9) What is your **MAIN** source of fuel your household uses for cooking? ENTER CODE

*(Munoshandisei pakubika kumba kwenyu)*

ELECTRICITY = 01
LIQUID PROPANE GAS = 02
NATURAL GAS = 03
BIOGAS = 04
PARAFFIN/KEROSENE 05
COAL, LIGNITE = 06
CHARCOAL = 07
WOOD = 08
STRAW/SHRUBS/GRASS = 09
MAIZE/OTHER CROP WASTE = 10
OTHER (Please Specify)_____ = 76
DON'T KNOW = 99

(10) Does your household have? *(Please circle responses that apply – including no & zero under how many if household does not own good)*
*(Mhuri yenyu ine?)*

| | **HOUSEHOLD GOODS** *(MIDZIYO YEMUMBA)* | | **How Many?** *(Mangani?)* | | **ANIMALS** *(ZVIPFUWO)* | | **How Many?** *(Mangani)* |
|---|---|---|---|---|---|---|---|
| 1. | Electricity? *(Magetsi?)* | No = 1 Yes = 2 D/Know = 99 | | 10. | Chickens? *(Huku?)* | No = 1 Yes = 2 D/Know = 99 | |
| 2. | A radio? *(Wairesi?)* | No = 1 Yes = 2 D/Know = 99 | | 11. | Goats? *(Mbudzi?)* | No = 1 Yes = 2 D/Know = 99 | |
| 3. | A fixed telephone? *(Nhare yemumba?)* | No = 1 Yes = 2 D/Know = 99 | | 12. | Sheep? *(Hwai?)* | No = 1 Yes = 2 D/Know = 99 | |
| 4. | A mobile phone? *(Runhare mbozha?)* | No = 1 Yes = 2 D/Know = 99 | | 13. | Cows? *(Mombe?)* | No = 1 Yes = 2 D/Know = 99 | |
| 5. | A fridge? *(Firiji?)* | No = 1 Yes = 2 D/Know = 99 | | 14. | Pigs? *(Nguruve?)* | No = 1 Yes = 2 D/Know = 99 | |
| 6. | A television? *(Tv?)* | No = 1 Yes = 2 D/Know = 99 | | 15. | Horses/ Donkeys? *(Madhongi kana mabhiza?)* | No = 1 Yes = 2 D/Know = 99 | |
| 7. | A car or truck? *(Motokari kana Rori?)* | No = 1 Yes = 2 D/Know = 99 | | | | | |
| 8. | A motorcycle? *(Mudhudhudhu?)* | No = 1 Yes = 2 D/Know = 99 | | | | | |
| 9. | A bicycle (Bhasikoro?) | No = 1 Yes = 2 D/Know = 99 | | | | | |

(11) What kind of toilet facility do members of your household usually use? ENTER CODE

*(Imhando ipi yechimbuzi yamunoshandisa pamba penyu?)*

FLUSH TOILET = 11
PIT LATRINE/ BLAIR TOILET = 21
BUCKET TOILET = 31
NO FACILITY/BUSH/FIELD = 41
OTHER (Please Specify)_____ = 76
DON'T KNOW = 99

(12) Do you share this facility with other households? *(Please circle response)*

*(Munoshandisa chimbuzi nedzimwe dzimba here?)*

NO = 1 YES = 2 DON'T KNOW = 99



## SOCIO-ECONOMIC PROFILE (2)

**[INTERVIEWER OBSERVATIONS]**
**[ONGORORO YEMUBVUNZI]**

(13) Type of dwelling unit [RECORD OBSERVATION] ENTER CODE

*(Mhando yemba inogarwa?)*

TRADITIONAL = 01
MIXED = 02
DETACHED = 03
SEMI-DETACHED = 04
FLAT/TOWNHOME = 05
SHACK = 06
OTHER (Please specify)_____ = 76
DON'T KNOW = 99

(14) Type of material on roof [RECORD OBSERVATION] ENTER CODE

*(Mhando yedenga rakaturikiswa imba?)*

NO ROOF = 01
THATCH = 02
WOOD PLANKS = 03
ASBESTOS = 04
TILES = 05
CEMENT = 06
OTHER (Please Specify)_____ = 76
DON'T KNOW = 99

(15) Type of material on walls [RECORD OBSERVATION] ENTER CODE

*(Mhando yechidziro?)*

MUD = 01
STONE WITH MUD = 02
CEMENT = 03
CEMENT WITH STONE = 04
BRICKS = 05
WOOD PLANKS = 06
OTHER (Please Specify)_____ = 76
DON'T KNOW = 99

## EXPENDITURE INFORMATION

**[INTERVIEWER** – We would like to find out a bit about how much you spend]

***[MUBVUNZI** – Zvino tavakuda kuziva mashandisiro amunoita mari?]*

(16) How much do you spend per week (or per month) on:
*Munoshandisa mariyi pavhiki (kana pamwedzi) ku:*

1. Food? per week_____ per month_____
(*Chikafu?)*

2. Transport per week_____ per month_____
(*Michovha yokufambisa?)*

3. Electricity/ other fuel sources? Per week_____ per month_____
(*Magetsi/kana zvamunoshandisa kuona kana kubika?)*

4. Health related expenses? Per week_____ per month_____
(*Zvinoenderana nezveutano?)*

5. Education? Per term_____
(*Dzidzo?)*

6. Do you pay rent where you stay? (Munobhadhara mutero wemba pamunogara?) No = 1 Yes = 2
**(IF YES)**
Rent? Per week_____ per month_____
*(Mutero wemba?)*

## HEALTH SEEKING BEHAVIOUR (1)

| Line No. | Residents | Transport | Time taken | Perceived Cost | Availability of Drugs | Drug purchase | Perceived Quality | Satisfaction | Other Care | Provider for Other Care |
|---|---|---|---|---|---|---|---|---|---|---|
| | **[NAMES OF THOSE WHO FELL SICK] [*MAZITA EAVO VAKARWARA*]** | **How did [NAME] get to the health care provider? *Makasvika sei kune vanorapa?* [READ E.G'S FROM CODES]** | **How long did it take? (in minutes) *Makatora nguva yakadiyi ?*** | **Did [NAME] feel the cost of service was too high? *Munofunga kuti muripo wamakabvisa wakakura here?*** | **Where drugs or treatment available where [NAME] went? *Makawana mishonga kana rubatsiro here?* IF NO → Q.31 IF YES or D/K → Q.32** | **Did [NAME] go buy the drugs or medicine elsewhere? *Makanotenga mishonga kumwewo here?*** | **Was the facility that [NAME] went to clean? *Kwamakaenda kwakanga kuine hutsanana here?*** | **Was [NAME] satisfied with the service of care provided? *Makagutsikana nerubatsiro rwamakapiwa?* *IF NO or D/K* → Q. 34 IF YES → Q.37** | **Did [NAME] seek care elsewhere? *Makatsvaka rubatsiro kumwewo here?* IF NO or D/K → Q. 37 IF YES → Q.35** | **Which other provider did [NAME] seek care? *Ndekupi kumwe kwamakatsvaka rubatsiro?* SEE CODES BELOW** |
| Q.No. | | (27) | (28) | (29) | (30) | (31) | (32) | (33) | (34) | (35) |
| (1) | | | | No Yes D/K 1 2 99 | No Yes D/K 1 2 99 | No Yes D/K 1 2 99 | No Yes D/K 1 2 99 | No Yes D/K 1 2 99 | No Yes D/K 1 2 99 | |
| (2) | | | | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | |
| (3) | | | | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | |
| (4) | | | | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | |
| (5) | | | | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | 1 2 99 | |

**CODES**
**Q27. TRANSPORT**
01 = WALKING
02 = TAXI
03 = PRIVATE CAR
04 = AMBULANCE
05 = OTHER (Specify in box)
99 = DON'T KNOW

**CODES**
**Q35. PROVIDER TYPE:**
01 = PUBLIC CLINIC/ HOSPITAL
02 = PRIVATE CLINIC/ HOSPITAL
03 = MISSION CLINIC/ HOSPITAL
04 = PHARMACY
05 = RETAIL OUTLET (SUPERMARKET, TUCKSHOP)
06 = DRUG PEDDLAR/ BLACK MARKET
07 = TRADITIONAL HEALER
08 = FAITH HEALER
09 = SELF-CARE
10 = OTHER (Specify below name)
99 = DON'T KNOW

**INTERVIEWER – (DO NOT READ OUT) ON COMPLETION OF TABLE GO TO QUESTION 41 (Q. 41)]**

## HEALTH SEEKING BEHAVIOUR (2)

**[INTERVIEWER – (DO NOT READ OUT) – REMEMBER Q.40 IS FOR THOSE WHO WERE SICK OR NEEDED TREATMENT BUT DID NOT GO SEEK CARE]**

(36) What were you reasons for not seeking care? *(Circle all that apply and ask for other specifications)*
*(Chinangwa chenyu chekusatsvaga rubatsiro changa chiri sei?)*

| | | | | |
|---|---|---|---|---|
| 1. | Too expensive?<br>*(Zvaidhura)?* | No = 1 | Yes = 2 | D/Know = 99 |
| 2. | No transport?<br>*(Hakuna Zvokufambisa)?* | No = 1 | Yes = 2 | D/Know = 99 |
| 3. | Service was too far?<br>*(Kwakaita kure)?* | No = 1 | Yes = 2 | D/Know = 99 |
| 4. | No medicine available?<br>*(Hakuna mishonga)?* | No = 1 | Yes = 2 | D/Know = 99 |
| 5. | Provider was inappropriate for illness type?<br>*(Rubatsiro harwaiita kuurwere hwacho?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 6. | Previous bad treatment?<br>*(Kurapwa kusina kunaka mushure?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 7. | Didn't know where to go?<br>*(Kusaziva kwekuenda?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 8. | Didn't feel that sick?<br>*(Kusarwara zvakanyanya?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 9. | Had medicine at home?<br>*(Kutora mishonga kumba?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 10. | Denied health care?<br>*(Kutadziswa kurapwa?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 11. | Felt service would be of bad quality?<br>*(Fungidziro yekuti marapirwo haana kunaka?)* | No = 1 | Yes = 2 | D/Know = 99 |
| 12. | Other reasons? (specify in space IF YES)<br>*(Zvimwewo zvinagwa? (Jekesai )*<br>*(If extra space is needed – write on back of paper)* | No = 1 | Yes = 2 | D/Know = 99<br>_____<br>_____<br>_____<br>_____ |

## HEALTH SEEKING BEHAVIOUR (3)

**[INTERVIEWER** - We would like to ask you questions on you or your family member's health seeking behaviour (6 years ago) **before 2002** (before the start of the economic crisis)]
*[**MUBVUNZI** – Tinoda kubvunza mibvunzo pamusoro pekutsvaga kwenyu kana umwe wemhuri yenyu kurapwa (makore mashanu apfuura)* ***mushure megore ra2002*** *(Upfumi hwenyika husati washata)*

(37) When you or a family member had fallen sick or needed treatment did you go seek care?
*(Imi kana umwe wemhuri yenyu arwara munonotsvaga kurapwa here?)*
No = 1 Yes = 2 D/Know = 99

IF NO, why did you or your family member not go seek care?
*(Kana mhinduro iri KWETE, sei musina kunotsvaga rubatsiro rwekurapwa)*

_____

IF YES, where did you or your family member go seek care?
*Kana mhinduro iri HONGU, imi kana umwe wemhuri yenyu akawana rubatsiro kupi?*

| | |
|---|---|
| 01 = PUBLIC CLINIC/ HOSPITAL | 07 = TRADITIONAL HEALER |
| 02 = PRIVATE CLINIC/ HOSPITAL | 08 = FAITH HEALER |
| 03 = MISSION CLINIC/ HOSPITAL | 09 = SELF-CARE |
| 04 = PHARMACY | 10 = OTHER (Specify)_____ |
| 05 = RETAIL OUTLET (SUPERMARKET, TUCKSHOP) | 99 = DON'T KNOW |
| 06 = DRUG PEDDLAR/ BLACK MARKET | |

| Q. No. | | |
|---|---|---|
| (38) | Did you have medical aid?<br>*(Maipiwa rubatsiro mukurapwa kwenyu here?)* | No = 1 Yes = 2 D/Know = 99 |
| (39) | Did you receive government subsidy?<br>*(Makawana rubatsiro kubva kuHurumende here?)* | No = 1 Yes = 2 D/Know = 99 |
| (40) | Did you have to pay for treatment?<br>*(Makaripa kurapwa kwenyu here)* | No = 1 Yes = 2 D/Know = 99 |
| (41) | Was the cost of the health care services more manageable then (2002) rather than now?<br>*(Kurapwa kwakanga kuchikwanisika here mushure ma2002 pane iyezvino?)* | No = 1 Yes = 2 D/Know = 99 |
| (42) | How did you transport yourself to the health care provider? **[USE CODES ON PREVIOUS PAGE]**<br>*(Makafamba neyi kuenda kwamakanobatsirwa)* | |
| (43) | How long did it take you to get there (in minutes)?*(Makatora nguva yakadiyi kusvikako?)* | |
| (44) | Were there drugs or treatment available, where you or a family member sought care?<br>*(Kwamakanobatsirwa kwaiva nemishonga here?)* | No = 1 **(→ Q.45)** Yes = 2 **(→Q.46)** D/Know = 99 **(→ Q.45)** |
| 45) | Did you have to purchase drugs elsewhere?<br>*(Makanotenga mishonga kumwewo here?)* | No = 1 Yes = 2 D/Know = 99 |
| (46) | Did you find that the facilities were clean?<br>*(Makawana nzvimbo yacho ineutsanana here)* | No = 1 Yes = 2 D/Know = 99 |
| (47) | Were you satisfied with the level of care you or your family member received?<br>*(Makagutsikana nerubatsiro rwamakawana here?)* | No = 1 **(→ Q.48)** Yes = 2 **(→Q.50)** D/Know = 99 **(→ Q.48)** |
| (48) | Did you go seek care elsewhere?<br>*(Makanotsvaga rubatsiro kumwewo here)* | No = 1 Yes = 2 D/Know = 99 |
| (49) | What was your second choice when you sought care?<br>*(Ndekupi kumwe kwaizoenda kunotsvaga rubatsiro?)***[USE CODES ON PREVIOUS PAGE]** | |

## HOUSEHOLD INFORMATION

[**INTERVIEWER** - We would like to find out a bit more information about the people who live in your household]

[**Mubvunzi** – Tinoda kuzivazve maererano nevanhu vamunogara navo mumba menyu]

| Line No. | Residents *(Vagari)* | Religion *(Chitendero)* | Occupation *(Basa)* | Income *(Muhoro)* | Informal Income |
|---|---|---|---|---|---|
| | **[NAMES FROM PREVIOUS PAGE]** | **What is [NAME'S] religion?** *Chitendero chenyu chii?* | **What is your occupation?** *Munoiita basa rei?* | **[FOR THOSE WHO ARE FORMALLY EMPLOYED]** **What is the monthly income for [NAME]?** *Muhoro webasa ramunobata wakamira sei? [ASK RANGES IF NO EXACT FIGURE GIVEN]* | **How much do you earn from informal sources?** *Munowana mariyi kubva kuneamwe mabasa enyu amunobata emawoko?* |
| Q.No. | | (50) | (51) | (52) | (53) |
| (1) | | | | | |
| (2) | | | | | |
| (3) | | | | | |
| (4) | | | | | |
| (5) | | | | | |
| (6) | | | | | |
| (7) | | | | | |
| (8) | | | | | |

**CODES**

**Q.50 RELIGION**
01 = TRADITIONAL
02 = ROMAN CATHOLIC
03 = PROTESTANT
04 = PENTECOSTAL
05 = APOSTOLIC SECT
06 = OTHER CHRISTIAN
07 = MUSLIM
08 = NONE
09 = OTHER (Specify below box)
99 = DON'T KNOW

**Q.51 OCCUPATION**
01 = PROFESSIONAL (DOCTOR, NURSE)
02 = MANAGERIAL
03 = CLERICAL WORK
04 = SALES AND SERVICES (FORMAL)
05 = SKILLED MANUAL
06 = UNSKILLED MANUAL
07 = DOMESTIC WORK
08 = AGRICULTURE
09 = INFORMAL/ CROSS BORDER TRADER
10 = STUDENT
11 = OTHER (Specify below box)
12 = UNEMPLOYED/ RETIRED
99 = DON'T KNOW

**Q.52 & Q.53 INCOME:**
01 = NONE
02 = BELOW 3 MILLION
03 = Z$3 MILLION to 8 MILLION
04 = Z$8 MILLION to 15 MILLION
05 = Z$15 MILLION to 30 MILLION
06 = Z$30 MILLION to 50 MILLION
07 = Z$50 MILLION to 75 MILLION
08 = OVER Z$75 MILLION
99 = DON'T KNOW

## FINAL QUESTIONS

**[INTERVIWER** – The interview is about to come to an end, we have a few more questions we would like to ask you]
***[MUBVUNZI*** – *Nhaurirano yedu yavakuda kupera,tine mubvunzo mishoma yatinoda kukubvunzai]*

(54) If you were to fall sick, where would you go to receive care or treatment? (Circle indicate all that apply)
*(Kana mukarwara, ndekupi kwamunoenda kunorapwa?)*

01 = PUBLIC CLINIC/ HOSPITAL
02 = PRIVATE CLINIC/ HOSPITAL
03 = MISSION CLINIC/ HOSPITAL
04 = PHARMACY
05 = RETAIL OUTLET (SUPERMARKET, TUCKSHOP)
06 = DRUG PEDDLAR/ BLACK MARKET
07 = TRADITIONAL HEALER
08 = FAITH HEALER
09 = SELF-CARE
10 = OTHER Specify)_____
99 = DON'T KNOW

(55) Why would that be your particular choice? *(If extra space is needed – write on back of paper)*
*(Sei muchizoita sarudzo yeikoko?)*

_____

_____

(56) Do you feel that there has been a change in terms of health care service delivery?
*(Munoona paine shanduko here pane rubatsiro runopiwa kunevanorwara?)*
No = 1 **(Go To → Q.58)** Yes = 2 **(Go To → Q. 57)** D/Know = 99 **(Go To → 58)**

(57) What do you feel has changed? *(If extra space is needed – write on back of paper)*
*(Munofunga chiyi chachinja?)*

_____

_____

(58) Any comments or suggestions you would like to make? *(If extra space is needed – write on back of paper)*
*(Mune pfungwa kana mazano amungade kupa here?)*

_____

_____

_____

**THIS IS NOW THE END OF OUR INTERVIEW. THANK YOU VERY MUCH FOR YOUR TIME AND ASSISTANCE.**

**[Apa ndipopaperera hurukuro yedu. Tinotenda nekutipa nguva yenyu nerubatsiro rwamatipa]**

**TIME ENDED**_____

## APPENDIX B: STATA Analysis Full Results

### Appendix B.1 Operationalization and Description of the Dependent and Independent Variables

| Variable Name | Operationalization | Explanation |
|---|---|---|
| **Dependent Variables** | | |
| Care | No Care = 0; Seek care = 1 | Seeking care |
| Hc_util | Public = 0; Private = 1; Other = 2; No Care = 3 | Health care utilization |
| | | |
| **Independent Variables** | | |
| Age | Age in years | Age of individual |
| Sex | Male = 0; Female = 1 | Gender of individual |
| Sex_hhead | Male = 0; Female = 1 | Gender of household head |
| Marital_stat_HH | Not Married = 0; Married = 1 | Marital Status of Household Head |
| Hhh_educ | No formal school = 0; Some formal education = 1 | Education level of household head |
| N7Size | Continuous variable | Household size, ranges from 1-10 |
| Index_SES | Continuous variable | Wealth index/ indicator of socio-economic status |
| N20Severity | Mild = 1; Moderate = 2; Severe = 3 | Severity of illnesses |
| Religion | Not Apostolic Sect = 0; Apostolic Sect = 1 | Religious belief |
| Employment_HH1 | (base category) No = 0; Yes = 1 | Formally employed Household Head |
| Employment_HH2 | No = 0; Yes = 1 | Informally employed Household Head |
| Employment_HH3 | No = 0; Yes = 1 | Unemployed Household Head |



### Independent Variables collapsed into Dummy Variables

| Old Variable | Variable Categories | New Variable | New Variable Categories |
|---|---|---|---|
| Gender | 1 = Male<br>2 = Female | Sex | 0 = Male<br>1 = Female |
| Marital Status | 1 = Married<br>2 = Living with partner<br>3 = Divorced<br>4 = Separated<br>5 = Widowed<br>6 = Never married/ never lived with partner | Marital_stat_HH | 0 = Not Married (2,3,4,5,6)<br>1 = Married (1) |

| | | | |
|---|---|---|---|
| Education | 1 = No Formal<br>2 = Less than primary<br>3 = Primary school<br>4 = Secondary school<br>5 = Undergraduate education<br>6 = Postgraduate education | Hhh_educ | 0 = No formal school (1)<br>1 = Some formal education (2,3,4,5,6) |
| Rel. | 1 = Traditional<br>2 = Roman Catholic<br>3 = Protestant<br>4 = Pentecostal<br>5 = Apostolic Sect<br>6 = Other Christian<br>7 = Muslim<br>8 = None | Religion | 0 = Not Apostolic Sect (1,2,3,4,6,7,8)<br>1 = Apostolic Sect (5) |
| Occupation | 1 = Professional<br>2 = Managerial<br>3 = Clerical Work<br>4 = Sales and Services<br>5 = Skilled manual<br>6 = Unskilled Manual<br>7 = Domestic Work<br>8 = Agriculture<br>9 = Informal/ Cross Border Trader<br>10= Student*<br>11= Other<br>12= Unemployed | Employment_HH1 | 0 = Formally Employed (1,2,3,4,5,6,7,8,11)<br>1 = Not formally Employed (9,12) |
| | | Employment_HH2 | 0 = Informally Employed (9)<br>1 = Not informally Employed (1,2,3,4,5,6,7,8,11,12) |
| | | Employment_HH3 | 0 = Unemployed (12)<br>1 = Not unemployed (1,2,3,4,5,6,7,8,9,11) |

*Students excluded from analysis as they are not considered to be employed nor unemployed

# Appendix B.2 Correlation Matrix

```
. corr age sex sex_hhead marital_stat_HH hhh_educ n7size index_SES n20severity religion  employ
> ment_HHH2 employment_HHH3
(obs=187)
```

| | age | sex | sex_hh~d | marita~H | hhh_educ | n7size | index_~S | n20sev~y | religion |
|---|---|---|---|---|---|---|---|---|---|
| age | 1.0000 | | | | | | | | |
| sex | 0.0812 | 1.0000 | | | | | | | |
| sex_hhead | -0.0016 | 0.1872 | 1.0000 | | | | | | |
| marital_st~H | 0.0696 | -0.0871 | -0.6506 | 1.0000 | | | | | |
| hhh_educ | -0.2849 | 0.0545 | 0.0327 | -0.0914 | 1.0000 | | | | |
| n7size | 0.1777 | 0.0144 | 0.0734 | -0.0053 | -0.3280 | 1.0000 | | | |
| index_SES | 0.0534 | -0.0111 | -0.0513 | -0.0197 | 0.1309 | 0.0576 | 1.0000 | | |
| n20severity | 0.0244 | -0.1925 | 0.1266 | -0.1635 | 0.0269 | 0.0366 | -0.0714 | 1.0000 | |
| religion | -0.0105 | -0.0201 | 0.0501 | -0.0219 | 0.0369 | -0.1232 | -0.1788 | 0.1415 | 1.0000 |
| employment~2 | 0.0488 | -0.1076 | -0.2701 | 0.2926 | -0.1061 | -0.0731 | -0.0222 | -0.0148 | -0.1674 |
| employment~3 | 0.1295 | -0.1367 | -0.0432 | 0.1378 | 0.0133 | 0.1139 | 0.1519 | 0.1128 | 0.1097 |

| | employ~2 | employ~3 |
|---|---|---|
| employment~2 | 1.0000 | |
| employment~3 | -0.2338 | 1.0000 |

## Appendix B.3 Principal Components Analysis Results

```
. pca water fuel cell fridge car motorcycle bicycle chickens23 chickensm23 goats12 goatsm12
>  cows10 cowsm10   no_chicken no_goat no_cows ns_toilet, mineigen(1)

Principal components/correlation                  Number of obs    =       1942
                                                  Number of comp.  =          6
                                                  Trace            =         17
    Rotation: (unrotated = principal)             Rho              =     0.6745
```

| Component | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Comp1 | 4.25234 | 2.14015 | 0.2501 | 0.2501 |
| Comp2 | 2.11219 | .463573 | 0.1242 | 0.3744 |
| Comp3 | 1.64862 | .350022 | 0.0970 | 0.4714 |
| Comp4 | 1.29859 | .160763 | 0.0764 | 0.5477 |
| Comp5 | 1.13783 | .1216 | 0.0669 | 0.6147 |
| Comp6 | 1.01623 | .0339654 | 0.0598 | 0.6745 |
| Comp7 | .982267 | .088278 | 0.0578 | 0.7322 |
| Comp8 | .893988 | .107662 | 0.0526 | 0.7848 |
| Comp9 | .786327 | .051586 | 0.0463 | 0.8311 |
| Comp10 | .734741 | .0812318 | 0.0432 | 0.8743 |
| Comp11 | .653509 | .0508881 | 0.0384 | 0.9127 |
| Comp12 | .602621 | .140248 | 0.0354 | 0.9482 |
| Comp13 | .462373 | .0440071 | 0.0272 | 0.9754 |
| Comp14 | .418366 | .418366 | 0.0246 | 1.0000 |
| Comp15 | 0 | 0 | 0.0000 | 1.0000 |
| Comp16 | 0 | 0 | 0.0000 | 1.0000 |
| Comp17 | 0 | . | 0.0000 | 1.0000 |

Principal components (eigenvectors)

| Variable | Comp1 | Comp2 | Comp3 | Comp4 | Comp5 | Comp6 | Unexplained |
|---|---|---|---|---|---|---|---|
| water | -0.0008 | 0.0602 | -0.3353 | 0.4457 | 0.1769 | 0.5370 | .2203 |
| fuel | -0.0040 | 0.1845 | 0.3512 | 0.3009 | -0.3385 | -0.4597 | .2621 |
| cell | 0.1045 | 0.2255 | 0.4572 | 0.0799 | 0.1951 | 0.1751 | .4187 |
| fridge | 0.1343 | 0.2749 | 0.4412 | 0.1907 | 0.2383 | 0.1253 | .3151 |
| car | 0.1372 | 0.3214 | 0.1335 | -0.1049 | 0.3110 | 0.0600 | .5444 |
| motorcycle | 0.0951 | 0.0722 | 0.0457 | -0.3802 | -0.3134 | 0.1295 | .6305 |
| bicycle | 0.1602 | 0.0626 | 0.0806 | -0.5466 | 0.2741 | 0.1127 | .3856 |
| chickens23 | 0.2877 | -0.3303 | -0.0719 | 0.0799 | 0.3860 | -0.1535 | .2073 |
| chickensm23 | 0.2298 | 0.2992 | -0.1772 | 0.2324 | -0.3655 | 0.1318 | .2949 |
| goats12 | 0.2825 | -0.3611 | 0.1128 | 0.1020 | 0.0510 | -0.2304 | .2938 |
| goatsm12 | 0.2827 | 0.3600 | -0.2635 | -0.0694 | -0.1377 | 0.0351 | .2429 |
| cows10 | 0.2434 | -0.2998 | 0.3250 | 0.0511 | -0.2747 | 0.3791 | .1489 |
| cowsm10 | 0.2687 | 0.3204 | -0.2473 | -0.1713 | 0.0675 | -0.2818 | .2514 |
| no_chicken | -0.3872 | 0.1147 | 0.1669 | -0.2063 | -0.1249 | 0.0576 | .2125 |
| no_goat | -0.4225 | 0.0685 | 0.0774 | -0.0405 | 0.0471 | 0.1710 | .1867 |
| no_cows | -0.3980 | 0.0489 | -0.1208 | 0.0707 | 0.1980 | -0.1456 | .2247 |
| ns_toilet | -0.0633 | 0.2283 | 0.0121 | 0.2387 | 0.2192 | -0.2209 | .6944 |

## Appendix B.3 Principal Components Analysis Results (cont.)

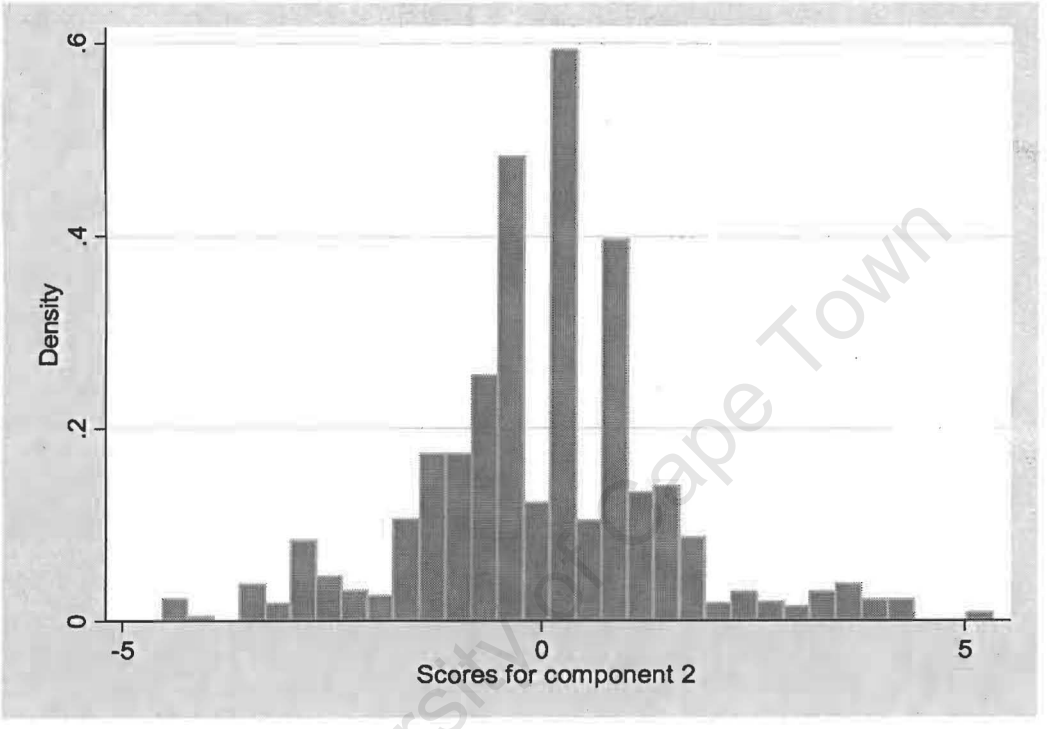
```
. predict index_SES1 index_SES
(score assumed)
(4 components skipped)

Scoring coefficients
    sum of squares(column-loading) = 1
```

| Variable | Comp1 | Comp2 | Comp3 | Comp4 | Comp5 | Comp6 |
|---|---|---|---|---|---|---|
| water | -0.0008 | 0.0602 | -0.3353 | 0.4457 | 0.1769 | 0.5370 |
| fuel | -0.0040 | 0.1845 | 0.3512 | 0.3009 | -0.3385 | -0.4597 |
| cell | 0.1045 | 0.2255 | 0.4572 | 0.0799 | 0.1951 | 0.1751 |
| fridge | 0.1343 | 0.2749 | 0.4412 | 0.1907 | 0.2383 | 0.1253 |
| car | 0.1372 | 0.3214 | 0.1335 | -0.1049 | 0.3110 | 0.0600 |
| motorcycle | 0.0951 | 0.0722 | 0.0457 | -0.3802 | -0.3134 | 0.1295 |
| bicycle | 0.1602 | 0.0626 | 0.0806 | -0.5466 | 0.2741 | 0.1127 |
| chickens23 | 0.2877 | -0.3303 | -0.0719 | 0.0799 | 0.3860 | -0.1535 |
| chickensm23 | 0.2298 | 0.2992 | -0.1772 | 0.2324 | -0.3655 | 0.1318 |
| goats12 | 0.2825 | -0.3611 | 0.1128 | 0.1020 | 0.0510 | -0.2304 |
| goatsm12 | 0.2827 | 0.3600 | -0.2635 | -0.0694 | -0.1377 | 0.0351 |
| cows10 | 0.2434 | -0.2998 | 0.3250 | 0.0511 | -0.2747 | 0.3791 |
| cowsm10 | 0.2687 | 0.3204 | -0.2473 | -0.1713 | 0.0675 | -0.2818 |
| no_chicken | -0.3872 | 0.1147 | 0.1669 | -0.2063 | -0.1249 | 0.0576 |
| no_goat | -0.4225 | 0.0685 | 0.0774 | -0.0405 | 0.0471 | 0.1710 |
| no_cows | -0.3980 | 0.0489 | -0.1208 | 0.0707 | 0.1980 | -0.1456 |
| ns_toilet | -0.0633 | 0.2283 | 0.0121 | 0.2387 | 0.2192 | -0.2209 |

## Appendix B.4 Distribution of index variable (Socio-economic Status)

```
. sum index_SES
```

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| index_SES | 1942 | 3.07e-10 | 1.453338 | -4.527631 | 5.333147 |



## Appendix B.5 Binary Choice Model – Logit Regression Analysis Results

```
. logit care age sex sex_hhead marital_stat_HH hhh_educ n7size index_SES n20severity religion
> employment_HHH2 employment_HHH3

note: employment_HHH3 != 0 predicts success perfectly
      employment_HHH3 dropped and 13 obs not used

Iteration 0:   log likelihood =   -113.90028
Iteration 1:   log likelihood =   -98.723065
Iteration 2:   log likelihood =   -98.195052
Iteration 3:   log likelihood =    -98.19033
Iteration 4:   log likelihood =    -98.19033

Logistic regression                             Number of obs   =        174
                                                LR chi2(10)     =      31.42
                                                Prob > chi2     =     0.0005
Log likelihood =   -98.19033                    Pseudo R2       =     0.1379
```

| care | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| age | -.0001174 | .0120107 | -0.01 | 0.992 | -.0236579 | .023423 |
| sex | .9528126 | .3777487 | 2.52 | 0.012 | .2124388 | 1.693186 |
| sex_hhead | .3183593 | .5841861 | 0.54 | 0.586 | -.8266244 | 1.463343 |
| marital_st~H | .6185007 | .512383 | 1.21 | 0.227 | -.3857516 | 1.622753 |
| hhh_educ | 1.062971 | .6569252 | 1.62 | 0.106 | -.2245784 | 2.350521 |
| n7size | .3502105 | .1338498 | 2.62 | 0.009 | .0878696 | .6125513 |
| index_SES | .1013281 | .1247726 | 0.81 | 0.417 | -.1432217 | .3458779 |
| n20severity | 1.106796 | .2792525 | 3.96 | 0.000 | .5594712 | 1.654121 |
| religion | .5052525 | .5372342 | 0.94 | 0.347 | -.5477073 | 1.558212 |
| employment~2 | -.0214447 | .3746279 | -0.06 | 0.954 | -.7557019 | .7128125 |
| _cons | -5.311417 | 1.371407 | -3.87 | 0.000 | -7.999326 | -2.623509 |

## Appendix B.6 Multinomial Regression Analysis Results

```
. mlogit hc_util age sex sex_hhead marital_stat_HH hhh_educ n7size index_SES n20severity religi
> on  employment_HHH2 employment_HHH3

Iteration 0:   log likelihood =   -208.53373
Iteration 1:   log likelihood =   -175.95881
Iteration 2:   log likelihood =   -170.18527
Iteration 3:   log likelihood =   -169.32556
Iteration 4:   log likelihood =     -169.085
Iteration 5:   log likelihood =   -168.99017
Iteration 6:   log likelihood =   -168.95273
Iteration 7:   log likelihood =   -168.93836
Iteration 8:   log likelihood =   -168.93297
Iteration 9:   log likelihood =   -168.93096
Iteration 10:  log likelihood =   -168.93023
Iteration 11:  log likelihood =   -168.92995
Iteration 12:  log likelihood =   -168.92985
Iteration 13:  log likelihood =   -168.92982
Iteration 14:  log likelihood =    -168.9298
Iteration 15:  log likelihood =    -168.9298
Iteration 16:  log likelihood =    -168.9298
Iteration 17:  log likelihood =    -168.9298
Iteration 18:  log likelihood =    -168.9298
Iteration 19:  log likelihood =    -168.9298
Iteration 20:  log likelihood =    -168.9298
Iteration 21:  log likelihood =    -168.9298
Iteration 22:  log likelihood =    -168.9298
Iteration 23:  log likelihood =    -168.9298
Iteration 24:  log likelihood =    -168.9298
Iteration 25:  log likelihood =    -168.9298
Iteration 26:  log likelihood =    -168.9298
Iteration 27:  log likelihood =    -168.9298
Iteration 28:  log likelihood =    -168.9298
Iteration 29:  log likelihood =    -168.9298
Iteration 30:  log likelihood =    -168.9298
Iteration 31:  log likelihood =    -168.9298
Iteration 32:  log likelihood =    -168.9298
Iteration 33:  log likelihood =    -168.9298

Multinomial logistic regression                 Number of obs   =        184
                                                  LR chi2(33)   =      79.21
                                                  Prob > chi2   =     0.0000
Log likelihood =   -168.9298                      Pseudo R2     =     0.1899
```

| hc_util | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| age | -.0019267 | .015194 | -0.13 | 0.899 | -.0317064 | .0278531 |
| sex | .2349411 | .5230136 | 0.45 | 0.653 | -.7901467 | 1.260029 |
| sex_hhead | 1.309684 | .7677535 | 1.71 | 0.088 | -.1950847 | 2.814454 |
| marital_st~H | .4410472 | .7629433 | 0.58 | 0.563 | -1.054294 | 1.936389 |
| hhh_educ | .5813317 | 1.171299 | 0.50 | 0.620 | -1.714372 | 2.877036 |
| n7size | -.1615103 | .1516428 | -1.07 | 0.287 | -.4587248 | .1357042 |
| index_SES | .1665303 | .1526384 | 1.09 | 0.275 | -.1326354 | .465696 |
| n20severity | .2969714 | .4070446 | 0.73 | 0.466 | -.5008213 | 1.094764 |
| religion | .3471324 | .6355853 | 0.55 | 0.585 | -.8985919 | 1.592857 |
| employment~2 | 1.274967 | .6031334 | 2.11 | 0.035 | .0928472 | 2.457087 |
| employment~3 | 2.02835 | .8383247 | 2.42 | 0.016 | .3852634 | 3.671436 |
| _cons | -3.256438 | 1.98132 | -1.64 | 0.100 | -7.139754 | .6268787 |

## Appendix B.6 Multinomial Regression Analysis Results (cont.)

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | | | | | | |
| age | -.0220648 | .0398302 | -0.55 | 0.580 | -.1001306 | .056001 |
| sex | 1.262139 | 1.159831 | 1.09 | 0.277 | -1.011089 | 3.535366 |
| sex_hhead | -31.5841 | 1.46e+07 | -0.00 | 1.000 | -2.87e+07 | 2.87e+07 |
| marital_st~H | 18.49591 | 7116.512 | 0.00 | 0.998 | -13929.61 | 13966.6 |
| hhh_educ | 17.24771 | 7116.512 | 0.00 | 0.998 | -13930.86 | 13965.36 |
| n7size | -.2744435 | .3831437 | -0.72 | 0.474 | -1.025391 | .4765044 |
| index_SES | .1018795 | .2924375 | 0.35 | 0.728 | -.4712874 | .6750464 |
| n20severity | -1.572764 | .7740764 | -2.03 | 0.042 | -3.089926 | -.0556025 |
| religion | .431986 | 1.449783 | 0.30 | 0.766 | -2.409536 | 3.273508 |
| employment~2 | -.0111273 | .8703413 | -0.01 | 0.990 | -1.716965 | 1.69471 |
| employment~3 | -34.3362 | 4.24e+07 | -0.00 | 1.000 | -8.32e+07 | 8.32e+07 |
| _cons | -33.97817 | . | . | . | . | . |
| 3 | | | | | | |
| age | -.0022011 | .0127006 | -0.17 | 0.862 | -.0270938 | .0226915 |
| sex | -.8086861 | .3976586 | -2.03 | 0.042 | -1.588083 | -.0292895 |
| sex_hhead | .0290359 | .6226142 | 0.05 | 0.963 | -1.191265 | 1.249337 |
| marital_st~H | -.4271123 | .5369775 | -0.80 | 0.426 | -1.479569 | .6253442 |
| hhh_educ | -.8903164 | .6860568 | -1.30 | 0.194 | -2.234963 | .4543301 |
| n7size | -.4038045 | .1396298 | -2.89 | 0.004 | -.6774738 | -.1301351 |
| index_SES | -.0689004 | .1329639 | -0.52 | 0.604 | -.3295049 | .1917041 |
| n20severity | -1.22334 | .3073947 | -3.98 | 0.000 | -1.825822 | -.6208573 |
| religion | -.4929411 | .5648133 | -0.87 | 0.383 | -1.599955 | .6140727 |
| employment~2 | .2693958 | .404291 | 0.67 | 0.505 | -.523 | 1.061792 |
| employment~3 | -34.84055 | 1.66e+07 | -0.00 | 1.000 | -3.26e+07 | 3.26e+07 |
| _cons | 5.666318 | 1.469172 | 3.86 | 0.000 | 2.786794 | 8.545841 |

(hc_util==0 is the base outcome)

## Appendix B.7 Hausman Specification Test Results

(dropped other care)

```
. hausman partial all, alleqs constant

Note: the rank of the differenced variance matrix (   1) does not equal the number of coefficients
      being tested ( 24); be sure this is what you expect, or there may be problems computing
      the test.  Examine the output of your estimators for anything unexpected and possibly
      consider scaling your variables so that the coefficients are on a similar scale.
```

| | Coefficients (b) partial | (B) all | (b-B) Difference | sqrt(diag(V_b-V_B)) S.E. |
|---|---|---|---|---|
| 1 | | | | |
| age | -.0025907 | -.0019267 | -.000664 | .0017091 |
| sex | .2104664 | .2349411 | -.0244747 | . |
| sex_hhead | 1.320598 | 1.309684 | .0109132 | .0327212 |
| marital_st~H | .4423763 | .4410472 | .0013291 | . |
| hhh_educ | .5756449 | .5813317 | -.0056869 | .0394712 |
| n7size | -.1563855 | -.1615103 | .0051248 | .0107907 |
| index_SES | .1737727 | .1665303 | .0072424 | . |
| n20severity | .2752876 | .2969714 | -.0216838 | .0420372 |
| religion | .3999628 | .3471324 | .0528303 | .099629 |
| employment~2 | 1.294287 | 1.274967 | .0193206 | .0560826 |
| employment~3 | 2.024973 | 2.02835 | -.0033764 | . |
| _cons | -3.212973 | -3.256438 | .0434643 | .1609571 |
| 3 | | | | |
| age | -.0033938 | -.0022011 | -.0011927 | .0018396 |
| sex | -.7988926 | -.8086861 | .0097935 | . |
| sex_hhead | .0291292 | .0290359 | .0000933 | .0214109 |
| marital_st~H | -.4153756 | -.4271123 | .0117367 | . |
| hhh_educ | -.9258712 | -.8903164 | -.0355548 | .0451638 |
| n7size | -.4029845 | -.4038045 | .00082 | .0190818 |
| index_SES | -.0489141 | -.0689004 | .0199863 | . |
| n20severity | -1.228208 | -1.22334 | -.0048684 | .0411099 |
| religion | -.4269906 | -.4929411 | .0659505 | .0998939 |
| employment~2 | .2421147 | .2693958 | -.027281 | .0580268 |
| employment~3 | -39.71898 | -34.84055 | -4.878425 | 1.88e+08 |
| _cons | 5.729643 | 5.666318 | .0633251 | .2119823 |

```
                b = consistent under Ho and Ha; obtained from mlogit
     B = inconsistent under Ha, efficient under Ho; obtained from mlogit

   Test:  Ho:  difference in coefficients not systematic

                chi2(  1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =            0.00
              Prob>chi2 =          1.0000
              (V_b-V_B is not positive definite)
```

## Appendix C: Ethical Approval Letters

## Appendix C.1 Approval Letter from the Research Ethics Committee(University of Cape Town)

UNIVERSITY OF CAPE TOWN

**Faculty of Health Sciences**

*Ruweida Joseph*
*Postgraduate Administrative Officer*
Room N2.19.1, Wernher & Beit Building North
Anzio Road
Observatory, 7925

12 November 2007

Ms NT Bandason
Rondegerb Flats
University of Cape Town

Dear Ms Bandason

Candidature approval

| | |
|---|---|
| Degree | MPH (Health Economics) |
| Title | Patterns and determinants of utilization of healthcare services in Zimbabwe |
| Department | Public Health & Family Medicine |
| Supervisor | Dr O Okorafor |
| Ethics approval | 419/2007 |

I am pleased to advise that the Chair of the Dissertations Committee, has approved your candidature for the above degree on behalf of the Committee. Formal approval will be obtained by publication in the next Dean's Circular.

Sincerely

Ruweida Joseph
Postgraduate Administrative Officer

☎ (021) 406-6809 E-[x]: Ruweida.Joseph@uct.ac.za FAX: (021) 406-6584

## Appendix C.2 Approval Letter from the Medical Research Council of Zimbabwe

Telephone: 791792/791193/792747
Telefax (263) - 4 - 790715
E-mail mrcz@mrczimshared.co.zw

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

MRCZ APPROVAL LETTER

MRCZ/B 5 /1418 Date: 11 December 2007

Nyasha Bandason
123 Baines Ave
Harare.

RE: Patterns and Determinants of health Care in Zimbabwe

Thank you for the above titled proposal that you submitted to the Medical Research Council of Zimbabwe (MRCZ) for review. Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled sub study. This approval is based on the following:

(a) Study protocol
(b) Shona and English Informed Consent forms

- APPROVAL NUMBER :MRCZ/A/1418
  The above details should be used on all correspondences, consent forms and documents as appropriate
- TYPE OF MEETING : Full Board
- MEETING DATE : 11 DECEMBER 2007
- EXPIRY DATE : 10 DECEMBER 2008
  After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted one month before the expiration date for continuing review.
- SERIOUS ADVERSE EVENT REPORTING: All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices.
- MODIFICATIONS: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- TERMINATION OF STUDY: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices.
- QUESTIONS: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrczimshared.co.zw.
- Other:
  **Please be reminded to send in copies of your final research results for our records as well as for the Health Research Database.**

Kind regards.

MRCZ SECRETARIAT
FOR CHAIRPERSON,
FOR MEDICAL RESEARCH COUNCIL OF ZIMBABWE